Medical Library

This Issue Exceeds 95,000 Copies

THE JOURNAL

OF THE

American Medical Association

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 95, No. 11 | 535 North Dearborn Street, CHICAGO, ILL. | SEPTEMBER 13, 1930

CONTENTS AND SUBJECT INDEX

The Trend of Present-Day Medical Education. James C. Masson, M.D., Rochester, Minn. 765

Acute Laryngeal Obstruction. L. G. Richards, M.D., Boston.....766
Discussed by Drs. Bentley, Pasternacki, Baum, Myers, Decker, Kemler and Richards.

Malarial Therapy in Dementia Paralytica. H. R. Unsworth, M.D., New Orleans.....772
Discussed by Drs. Michael, Smith, Heldt, Freeman, Altshuler, Neymann, Koenig and Unsworth.

The Age of Patients Operated on for Senile Cataract. Harry S. Gradle, M.D., Chicago.....774
Discussed by Drs. Parker and Gradle.

Meningococcic Meningitis: A Clinical Study of One Hundred and Forty-Four Epidemic Cases. K. C. Smithburn, M.D.; G. F. Kempf, M.D.; L. G. Zerfas, M.D., and L. H. Gilman, M.D., Indianapolis.776

Agranulocytosis: Report of a Case. Stewart R. Roberts, M.D., and Roy R. Kracke, M.D., Atlanta, Ga...780
Discussed by Drs. Rosenthal, Talley, J. E. Gordon, Brigham, W. H. Gordon and Roberts.

The Varicose Veins Slough. N. J. Kilbourne, M.D., Los Angeles.787

Lung Abscesses: A Clinical Study, with Especial Emphasis on Conservative Treatment. H. I. Spector, M.D., St. Louis.....789

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

A Ureteral Stone Dislodger. R. W. McKay, M.D., Charlotte, N. C..794

Aspergillus Infection of the Hand. John T. Myers, M.D., and A. D. Dunn, M.D., Omaha.....794

Tic of Salpingopalatinus Muscle Causing Sound Audible to Bystander. Henry F. Stoll, M.D., Hartford, Conn. 796

COUNCIL ON PHARMACY AND CHEMISTRY 797

EDITORIALS

Vitamin A in Disease.....798

Efficiency of Human Muscles....799

Certain Public Health Problems in Brucelliasis 799

The Lungs and Fat Metabolism..800

CURRENT COMMENT

The Neglect of Pharmacology...801

When Antivivisectors Flourish..801

The Management of Opium Addiction 801

Bacterial Growth Stimulants in Immune Serum.....802

(Subject Index on next page)

ASSOCIATION NEWS 802

Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Sec. 1103, Act of Oct. 3, 1917, authorized on June 14, 1918. If undeliverable, forwarding and return postage is guaranteed.

Copyright, 1930, by the American Medical Association.

NEXT ANNUAL SESSION, PHILADELPHIA, 1931

New–Maximow's Histology–*Ready*

WITH 604 MAGNIFICENT ILLUSTRATIONS

HERE is a new text-book that presents histology from its *living*, *functioning*, and *human aspects*. The minute structure is correlated with its function; hence, the student is told not that the kidney elaborates urine, *but which cells of the kidney elaborate which constituents of the urine—and by what mechanism.*

Professor Maximow's book departs from the old order and presents histology as a *living subject*. At all times emphasis is on the study of *adult tissue*, giving histogenetic data only when they will aid the student's understanding of the mature tissue or organ.

There are 604 striking histologic portraits! Not diagrams, but *portraits of living material* that will enable the student to recognize the structure when he views it under the microscope. The proportions are accurate, the tones are life-like, and many show the relationship of cells in *three dimensions*. Professor Maximow's drawings have been reproduced and printed with all the beauty and details of the originals.

Large octavo of 833 pages, with 604 illustrations, some in colors. By ALEXANDER A. MAXIMOW, late Professor of Anatomy, University of Chicago. Completed and edited by WILLIAM BLOOM, Assistant Professor of Anatomy, University of Chicago. Cloth, $9.00 net

Another important SAUNDERS BOOK on Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

Abdomen, painful postoperative scars....ab-824
band, use, in infants....817
Advertising by physicians....811
Agranulocytosis....*780
Albuminuria with globulin in urine....ab-830
American Association of Obstetricians, Gynecologists and Abdominal Surgeons....805
Anemia, Pernicious, thrombocyte values in....ab-832
Ventriculin in....797
Anesthesia, spinal, vs. cardiac output....ab-824
Anesthetics, action on uterus....ab-827
Angina Pectoris: surgical suppression of pressor reflex....ab-830
Anthropologic investigation in South Africa.809
Antiseptic to prevent spores in solution....817
Antivivisectors, when they flourish....E-801
d'Antona, Antonino, in memory of....809
Appendicitis after tonsillectomy....ab-823
Army, French, vaccination in....808
Arthritis deformans from stenosing tendovaginitis....ab-831
vertebral, relation to trauma....809
Aspergillus infection of hand....*794
Association News....802
Bacteria growth stimulants in immune serum....E-802
vitamin A deficiency produces favorable medium for....E-798
Bacteriologist, professional, requirements for, Germany....811
Bandage, commercial, bacteria in....ab-828
Baths, hot, in sclerosis....ab-825
Bed, screened, hazard from lid of....C-816
Biliary Tract, surgical diseases from parasites....ab-829
Blood count in agranulocytosis....*780
of pregnant woman, therapeutic use....ab-828
Body, supporting structures....ab-829
Bone, complete resorption after fracture.ab-831
long, irradiation in agranulocytosis....*780
marrow, primary pathogenic condition in, in agranulocytosis....*780
Book Notices....819
Books Received....Adv. page 32
Brain, electrocoagulation in surgery....ab-832
roentgen study and the roentgenologist.ab-826
British Columbia Medical Association, postgraduate tour....805
British Medical Association election....805
Bromide psychosis or intoxication....ab-826
Bureau of Investigation....814
Calf, immune, to undulant fever....E-799
Cancer, causes of increasing mortality....807
Carbon, use in disease....ab-827
Cauliflower ear in a wrestler....817
Chiropractic: electric treatments; right to give....Ml-822
Cholera, vaccination in French army....808
Chorio-epithelioma, Aschheim-Zondek's test....ab-832
Cicatrix, painful postoperative abdominal.ab-824
Clavicle, beef-bone graft in reductions...ab-825
Colds, high fat feeding to prevent....ab-826
Colitis, ulcerative....ab-825
Copper treatment of aspergillus infection..*794
Correspondence....815
Council on Pharmacy and Chemistry....797
Crime in modern society vs. mysticism....808
Cvanide poisoning, sodium thiosulphate in.ab-832
gas, manslaughter due to carelessness with.811
Deaths....812
Diabetes Mellitus in children: malformations....ab-829
Diabetes, Renal, familial....ab-830
Diphtheria, vaccination in French army....808
Disease and vitamin A....E-798
Dysmenorrhea, blood of pregnant woman and follicular fluid for....ab-828
Ear, cauliflower, in wrestler....817
audible ticking sound from....*796
Eclampsia, mortality, England....806
Edema of glottis....ab-771; ab-831
Embolism, pulmonary, prevention....ab-831
Emphysema, mediastinal and interstitial.ab-824
Endocarditis lenta....808
Eosinophilia....807
Epinephrine intravenously, vagotropic action....ab-828
Erythrocyte, basophilic substance....ab-827
Evidence, expert medicolegal service....809
Eye "specialists," warrants out for....803
Face, spasm of....818
Fallopian Tubes, removal, overcoming sterility after....817
Faraday, Michael, centenary....806
Fat feeding, high....ab-826
metabolism and lungs....E-800
Fever, antipyretics in....ab-827
after tonsillectomy....817
First-Aid train....809
Fistula of hip joint....ab-831
Fluke found in shrimps....ab-827
Follicular Fluid, therapy....ab-828
Food allergy....817
Foot, supernumerary....ab-825
Foreign Letters....806
Fracture, healing vs. x-rays....ab-831
complete resorption of bone after....ab-831
Fumigation with cyanide gas, fatality from..811
Gallbladder calculi, diagnosis....ab-828
emptying vs. cholecystitis....ab-824
Gangrene in varicose veins slough....*787
Glottis, edema....ab-771; ab-831
Growth factor in vitamin A....E-798
Hand, aspergillus infection....*794
Health center at Alhambra, Calif....862
examinations, periodic, five year program.804
schools, summer....802
Heart, insufficiency, hydrothorax in....ab-830
disease, laboratories for research in....803
output vs. spinal anesthesia....ab-824
Horse power efficiency of human muscles.E-799
Hospitals, bequests and donations....805
British, legal restriction on vivisection..E-801
new one at Cape Town....810
Hydrothorax in cardiac insufficiency....ab-830
Industrial accidents....807
adoption of five day week....807
poisoning with methyl alcohol....816
Infants, use of abdominal band in....817
hazard from lid of screened bed....C-816
Infection, resistance to, and vitamin A...E-798
Injections, giving them intrathecally....817
Insurance, life: representations of applicant, materiality....Ml-821
International Hygienic Exposition, American delegation at....812
Intestines, torsion of Meckel's diverticulum....ab-832
tuberculosis with phthisis....ab-823
Labor, drugs in vs. uterus....ab-827
Legal Medicine, French congress....808
Italian congress....809
Leukocyte count vs. sympathetic stimulation 807
preventing spores in solution for counting.817
Liver function tests, galactose, levulose..ab-827
Lungs, abscesses....*789
fat metabolism and....E-800
postoperative complications....ab-831
Lymphogranulomatosis, radiotherapy....ab-828
Marriages....812
Maternal mortality, undiminishing, England.806
Medical Education, postgraduate study, South Africa....810
summer courses, Italy....809
Medical Education, Registration....818
Medicolegal....821
Medicolegal Congresses....808; 809
Meetings, Coming Meetings....822
Meningitis, tuberculous, tuberculin intraspinally....ab-830
Menopause disorders, blood of pregnant woman for....ab-828
Menstruation, exanthem during....817
Mental Defectives, sterilization....806
Methyl Alcohol—methanol....816
Milk pasteurization and undulant fever..E-799
Morphine poisoning, fatal, by hypodermic injection....818
Muscle, salpingopalatinus, tic of, causing audible sound....*796
human, efficiency....E-799
Myoma of portio vaginalis uteri....ab-832
National Medical Congress, Mexico....805
Navicular Bone, isolated fracture....ab-832
Nephritis: dietetic treatment....ab-830
Nerve, vagotropic action of epinephrine..ab-828
Nervous System, sympathetic, stimulation vs. leukocyte count....807
New and Nonofficial Remedies....797
News....802
Northern Minnesota Medical Association....803
Nurses for children, training....812
Obesity, reducing treatments....ab-828
Opium addiction, management....E-801
Orphans, war, sanitary aid for, Italy....809
Orthopedic lecture established....804
Osteomyelitis, postoperative healing process in....ab-825
relation to trauma....808
Ovary dysfunction, blood of pregnant woman and follicular fluid for....ab-828
Oxford Ophthalmological Congress....805
Paralysis, postoperative gastric....ab-831
Patella, hereditary recurrent dislocation.ab-825
Pellagra in South Africa....810
Peptic Ulcer, perforated, peritonitis from.ab-831
Periosteum transplants wrapped around tendon....ab-825
Peritonitis, gas, from perforated gastric ulcer....ab-831
Pharmacology, neglect of....E-801
Phenobarbital, effect on sympathetic....807
Physicians, advertising by....811
Plague, vaccination in French army....808
Pleura, effusions....ab-823
Poliomyelitis epidemic, Alsace....808
Pregnancy, blood of woman, therapeutic value....ab-828
Prostitutes and venereal disease control....811
Puerperal Infection....ab-827
Queries and Minor Notes....816
Quinine bismuth Iodide....797
Radio Program....802
Radium, cause of death from....ab-826
in uterine hemorrhage....816
Railroad, first-aid train....809
Reflex, pressor, in angina pectoris: surgical suppression....ab-830
Resistance to disease and vitamin A....E-798
Robert Jones Lecture established....804
Runners, efficiency of human muscles....E-799
Safety campaign, seal of, Ohio....804
congress, annual....805
Schools, Medical, neglect of pharmacology.E-801
Sclerosis, multiple, hot baths in....ab-825
Screened bed, hazard from lid of....C-816
Serum, immune, bacteria growth stimulants in....E-802
Shrimps, fluke found in....ab-827
Society Proceedings....822
Sodium potassium bismuthyl tartrate....797
Soldiers and venereal disease control....811
Spinal Cord, injections given intrathecally..817
Spine as supporting structure of body....ab-829
Splenectomy for thrombosis of splenic vein....ab-831
Spores in solution, antiseptic to prevent, in.817
"Staphylocine"....C-815
Staphylococcus filtrates in infections....C-815
State Board Examinations....818
Sterility, overcoming, after removal of tubes.817
Sterilization, sexual, of unfit....806
Stomach, postoperative paralysis....ab-831
Summer health schools....802
Surgeons, district, graduate study for....810
Syphilis, treatment....797
Tartro-Quiniobine....797
Taste, nerve fibers transmitting sense of.ab-824
Tendon, periosteal transplants wrapped around....ab-825
Tendovaginitis, stenosing....ab-831
Thrombosis of femoral vessels....ab-832
of splenic vein....ab-831
Tic of salpingopalatinus muscle....*796
Tobacco, effect on sympathetic....807
Toes, nine....ab-825
what rôle does little toe play?....817
Tonics and Sedatives....Adv. page 26
Tonsillectomy, appendicitis after....ab-823
fever after....817
Trauma and osteomyelitis....808
vertebral arthritis and....809
Trochanter, lesser femoral, epiphyseal separation....ab-825
Tuberculosis, cod liver oil with phosphorus and Gerson diet for....ab-829
clinic, itinerant, Georgia....803
immunization, Langer....ab-823
immunization, Ponndorf's....ab-829
Tuberculosis, Pulmonary, phrenic interruption in....ab-826
intestinal tuberculosis in....ab-823
salt-free diet in....ab-829
viosterol, cod liver oil, etc., in....ab-829
Typhoid, vaccination in French army....808
Undulant Fever, certain public health problems in....E-799
Ureter stone dislodger....*794
Urethra, female, roentgen study....ab-832
Urine, albuminuria with globulin in....ab-830
Urticaria from food allergy....817
Uterus adnexa diseases, sedimentation test in....ab-832
hemorrhage, mortality, England....806
hemorrhage, radium in....816
human, effect of drugs on....ab-827
myoma of portio vaginalis....ab-832
Varicose Veins slough....*787
Venereal Disease in the British Empire....807
extraordinary law against, Bucharest....811
Ventriculin....797
Vitamin A in disease....E-798
War orphans, sanitary aid for, Italy....809
Wetnurse and venereal disease control....811
Wrestler, cauliflower ear in....817
Xerophthalmia and vitamin A....E-798

BOOK BUYING SIMPLIFIED
We supply new and standard medical works of all publishers
ONE ORDER—ONE REMITTANCE
GET OUR LATEST BULLETIN
CHICAGO MEDICAL BOOK CO. 436 S. Honore St. CHICAGO

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 95, No. 11 CHICAGO, ILLINOIS SEPTEMBER 13, 1930

THE TREND OF PRESENT-DAY MEDICAL EDUCATION *

JAMES C. MASSON, M.D.
ROCHESTER, MINN.

The trend of present-day medical education is toward scientific medicine and specialization. This is probably not altogether due to a desire on the part of a majority of physicians to limit their field of practice but is the natural reaction on their part to a demand made by the public. The natural result of specialization has been to increase the cost of adequate medical attention, and this works a real hardship on persons of moderate means. Before it can be said that this change is a definite advance, it must be possible to prove that better treatment is afforded the majority of the sick and afflicted than would be possible under general practitioners, medical consultants and general surgeons.

Until recently, a medical graduate was considered competent to treat all manner of ills, and only in obscure and complicated cases would a consultation be considered necessary. The result of such a system was that men of outstanding ability were called more and more in consultation, and eventually they came to be looked on as specialists in certain types of cases, but they had themselves passed through the rigid training of general practice and had a broad view of medicine. This training is very different from that which specialists of the future will have if the present tendency continues. In our lifetime the teaching of medicine has rapidly changed from an art to a science. The increasing cost and higher entrance standards, and the ultrascientific courses of our medical schools may change the type of men interested in this profession. The idea of practicing a specialty is well developed in the minds of most medical students, and before graduation they are already studying with some special line of work in mind. This all tends to the advancement of scientific medicine, but the specialist so produced is likely to be narrow in his point of view and lacking in the humanitarian interest that is so essential in caring for the sick.

Notable advancement has been made. Graduates in medicine today have a profound knowledge of the basic sciences, of the value of special tests and of the use of instruments of precision in arriving at a diagnosis. In group practice and in well organized hospitals, such training is of real value. We must not lose sight of the fact, however, that the general practitioner or the family physician is just as essential to the public welfare today as he ever was. His common sense, human interest, and skill in the clinical methods possible in the home will always be of supreme importance in deciding when special care and surgical procedures are indicated. I believe we should impress on those who wish to specialize the need of general knowledge in the handling of and caring for the sick and their families. After such training, if any physician wants to specialize in any branch of either medicine or surgery, he should take a graduate course. Such courses should be available at all grade A schools, or committees could be appointed to examine and give certificates to those with sufficient training in the various specialties. At present, the establishment of such a committee in the specialty of gynecology and obstetrics is under the consideration of representatives of this section, of the American Gynecological Society, and of the Association of Obstetricians, Gynecologists and Abdominal Surgeons. It is proposed that the committee have authority to issue certificates of eligibility to men of adequate training. This would designate such men as specialists in this field, and the public would benefit as a result.

Dr. Newell said, in his presidential address before the American Gynecological Society in 1926, "The obstetrician must be trained as carefully as is the surgeon for his life's work." There is no doubt that the application of surgical principles during confinements has reduced the number of cases of infection, but such cases are still more common than they should be and occur more often than would be inferred from the literature. In fact, maternal and infantile morbidity and mortality are not improving, even with the increase in the proportion of deliveries that take place in hospitals. The problem of how to improve the practice of obstetrics in rural communities is a difficult one. I think the most important consideration is education of the public to the advisability of antepartum examinations. Hospital care, with the added expense, is not necessary in absolutely normal cases, but when there is any suggestion of abnormality the patient should be sent to a hospital under the care of a competent specialist. Only one who specializes in gynecology and obstetrics can be considered competent. The general surgeon under modern training, as a rule, has a very poor idea of the proper handling of such cases.

Gynecology and obstetrics cannot be separated, nor can either be separated from general medicine. The gynecologist, to have a comprehensive view of the diseases of women, must be familiar with all obstetric problems and the obstetrician must have a thorough appreciation of the complications and late results of mechanical derangements and pathologic conditions which develop after childbirth. I am sure you will all agree with me when I say that gynecologic problems, such as congenital abnormalities, sterility, menstrual disturbances, inflammatory conditions, tumors and mal-

* From the Division of Surgery, the Mayo Clinic.

* Chairman's address, read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

position of the female genital organs can be cared for better by a gynecologist who is well trained as an obstetrician than by a general surgeon.

The fathers of modern surgery, and many of the ablest operators of today, had to learn by bitter experience the safe from the dangerous, and the good from the bad types of operation. Most of these men had good obstetric experience before they began to perform operations, and were competent to handle all gynecologic problems. Unfortunately, many men who are doing a great many operations on the female pelvic organs at the present time have had no such training. The result is that in some cases too radical operations, and in other cases insufficiently extensive operations often are performed. Physicians of today who have sufficient graduate training are able to start in any surgical specialty with an armament of knowledge that it has taken their instructors many years to acquire. The physician who is going to specialize in diseases of women must have a broad training and thorough understanding of obstetric problems as well as surgical judgment and technical skill.

In recent years, the roentgenologist and the radiotherapeutist have been thoroughly installed as specialists. On account of the many gynecologic conditions which respond to the gamma rays, it is natural that many patients are referred to such specialists for treatment; but unless these men are well trained in obstetric and gynecologic problems, there is danger in the form of treatment they employ. The best results will be obtained when gynecologists have control of these powerful agencies in the treatment of pelvic lesions, or at least work in close association with those who do control them.

There is no doubt that much of the advance made in medical knowledge during the last twenty years is the result of specialization. It is impossible for any man to keep abreast of medicine in all its branches. The result is that the young physicians today, when considering graduate work, are inclined to choose one narrow field and neglect all other fields. Such men are of real value when they are associated with specialists in other lines in group practice, or when they are on the staffs of large hospitals. Many good citizens, however, find it difficult and expensive to get the care and attention they require when they are ill or when they think they are threatened with illness. They cannot be cared for in the charity wards, and the advice of specialists in the various branches of medicine costs out of all proportion to their incomes. Those of us who have been in private practice can recall that among our most grateful patients were some who were not ill with any of the recognized diseases, but who required advice and assurance that could be given without calling a consultation.

It is difficult to see a satisfactory solution of the problem of furnishing adequate medical care for all the people at a cost which they can pay, but in recent years investigations which may lead to a solution have been begun. We can await the outcome of these studies, which are in able hands. Our task, meanwhile, I think, should be to help general practitioners to acquire adequate experience in obstetrics and gynecology, and to provide for admittance to the rank of specialists in obstetrics and gynecology only those who at the same time have sufficient basis in general medicine and sufficient expertness in our special branch to enable them to render adequate service.

ACUTE LARYNGEAL OBSTRUCTION*

LYMAN G. RICHARDS, M.D.
BOSTON

In these days when so much uncertainty and disagreement exist with regard to many otolaryngologic conditions and their treatment, one might well feel that at least the subject of acute laryngeal obstruction was one about which there is relatively little controversy. It may be difficult to decide whether the lining of an antrum should or should not be removed, but the advisability of relieving an obstruction of the gateway to the upper air passages is not a question for lengthy debate. Such obstruction, associated so often with danger to the life of the patient, must be promptly and efficiently treated, not only to afford rescue from the hazard of the moment, but also in such a way as to prevent the subsequent development of a train of sequelae, which, once supervening, may result in a most protracted convalescence and require tedious and long drawn out treatment.

In spite of the fact that the gross indications for the relief of laryngeal obstruction are not open to question, a study of the subject and a reasonable degree of experience with its manifestation soon bring to light the fact that, notwithstanding the relative urgency of the situation, a pause for sufficient time to map out a plan of campaign will prove eminently worth while. Not every acute obstruction of the larynx is to be handled in the same way, and if at the outset, before any therapeutic procedure is carried out, an accurate diagnosis can be made as to the exact nature of the obstruction, its cause, and its pathologic character, the laryngologist will find himself in a far more strategic position and far more likely to avoid complications than if he forges ahead, intent only on relieving the immediate symptoms.

I shall deal in this paper with the lessons which have been taught me (not always pleasant ones) by five years' experience in a large children's hospital. Out of such experiences I have evolved a sort of plan of campaign in the diagnosis and treatment of these cases which I believe can be applied to advantage by any one called on to deal with these always trying cases.

DIAGNOSIS

The establishment of the exact diagnosis is, of course, of fundamental importance. The sight of a child with urgent dyspnea and all its accompanying signs impels one at first thought to reach either for the intubation set or for the scalpel. Unless, however, the case is one of dire extremity there is still time for a more rational procedure. I refer to direct laryngoscopy. In my experience there is no method of procedure which so allows one to size up the situation, to make a more accurate diagnosis, or in some instances to carry out the most logical form of therapy, as the exposure of the larynx to direct vision. It enables one first of all to locate the point at which the obstruction is arising, above the cords, between the cords, or below the cords. It discloses the existence of that often unsuspected cause of obstruction, the foreign body, the presence or absence of a membrane, and the existence of a subglottic swelling when present. Such a survey of the larynx frequently demonstrates conditions in which it is possible either instrumentally at once to

* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

remove the cause of obstruction entirely, or to relieve it temporarily, whereas the blind introduction of the intubation tube, splendidly valuable as it has been in numberless cases, would have proved not only inadvisable but actually harmful. I have come to feel that every case of acute laryngeal obstruction should sooner or later be examined in this way. In no other manner can the fullest evaluation of the condition at hand be made.

Granted that the procedure has many advantages, what arguments can be adduced against it? One must, of course, have at his command the proper equipment and sufficient help to the degree that direct laryngoscopy can be performed as often as seems indicated and with the maximum comfort to the patient. Called to the home in a case of sudden and severe obstruction, the laryngologist must of necessity rely on a tracheotomy or indirect intubation. More and more, however, the pediatrician, who is quite apt to be the first to see the case, tends to refer it to a hospital before there is any necessity to resort to these measures. Adequate skill in carrying out the procedure goes without saying and should be part of the armamentarium of any laryngologist who is to undertake the treatment of these patients.

Granted that such a patient has been admitted and that the laryngologist has been called in consultation, what is the picture presented and how shall the case be handled? How accurately can a diagnosis as to the cause be made even before resort to direct laryngoscopy? Much can be determined by the general appearance and behavior of the patient. In the early stages the outstanding symptom is inspiratory stridor, at first without much evidence of substernal or epigastric retraction, a complication which of course clearly indicates that the obstruction is becoming progressively greater. Cyanosis, often thought of as a common sequel to this condition, has been rare in my experience and has appeared only at a late stage. It has been amazing to what degree extreme obstruction of the larynx with marked retraction of the chest could exist with a thoroughly healthy pink color of the skin and mucous membranes. This fact has been responsible in some instances for delay in the instituting of some radical measure for relief, on the ground that the child's color was still so good. Such false security must inevitably lead to disaster.

Marked restlessness has been an important symptom in my patients, and one occurring when the obstruction is still mild. Its existence or any gradual increase in it has always proved a danger signal, as indicative of the fact that sooner or later this ceaseless activity would wear the patient out. The control of such a situation by any form of sedative will serve only to mask the symptoms and deceive the physician as to the real condition of his patient.

Valuable information as to the immediate and future prognosis in acute laryngeal obstruction can be gained by a careful consideration of the temperature chart. The entire absence of fever would indicate a possible foreign body or a local inflammatory lesion of the larynx without systemic absorption or complications. The higher the temperature the more likely is the existence of a general toxic infection, coexistent with, and entirely apart from, the obstruction itself.

In the same way an important indication of the patient's condition can be obtained by observation of the pulse and respiration rate. Any evidence of a gradual but steady elevation of the pulse rate must be a warning that the strain on the general system is increasing and that the respiratory obstruction is not being tolerated with safety. Likewise a rising respiratory rate, usually high in the presence of any obstruction, indicates an unfavorable course and is a signal for more drastic measures.

It is by a careful consideration of all these factors that one must be guided in the course of action in handling cases of laryngeal obstruction. The question of when to institute any operative procedure, the first step in which should be a diagnostic laryngoscopy, is the principal one to be decided. If it is felt that the obstruction is relatively mild, that it is not producing a particularly severe strain, as measured by the standards suggested, it is quite justifiable to pursue the policy of watchful waiting. This plan, however, can prove safe or satisfactory only if the patient is under the most careful observation and nursing and if the physician can make frequent visits, and is prepared for further action at any time. Not infrequently a simple and limited inflammatory swelling of the larynx, without membrane and generalized edema, will subside under expectant treatment. This should consist of a room temperature of at least 75 F. with adequate provisions for increasing the humidity of the atmosphere. This is best accomplished by having available a constantly steaming vessel either of water or of some medication such as compound tincture of benzoin. The fluid intake of the patient should be maintained as high as possible and all sources of irritation or annoyance removed. Everything possible should be done to provide rest and quiet without, however, resorting to any real hypnotic.

Once such a regimen has been instituted, when should the physician decide that something more must be done? Under the circumstances there is a temptation, and one which proves strong even to the most experienced laryngologist, to delay more radical procedures. There is a sort of optimism that tends to make one desirous of avoiding manipulations which will, temporarily at least, tend to upset the patient. Nevertheless, if one is at any time definitely convinced that there is a gradual failure in improvement in the general condition, there should be no hesitation. Action is indicated and the results of careful and skilful treatment will be more than justified. Beyond this point, delay and hope of a change for the better will only jeopardize one's chances when it finally becomes imperative to intervene, perhaps by far more drastic measures than would have been necessary earlier.

With action as the deciding factor, a direct laryngoscopy is the procedure of choice. The inclination of certain pediatricians at this point to perform an indirect intubation, I believe, is not the best plan to follow. The direct observation of the larynx yields so much more information than the palpating finger that intubation at this stage is a premature procedure. Doubtless it would in many cases prove startlingly successful, but in others it would only damage structures already swollen to the limit of possible respiration. Assuming, then, that a patient is gradually becoming more dyspneic and fatigued from a condition considered to be an acute laryngeal obstruction, and that the larynx has been carefully and gently exposed by direct laryngoscopy, what may one expect to see and how shall the several conditions be dealt with?

TYPES OF LARYNGEAL OBSTRUCTION

1. *Foreign Body.*—Of this condition there may have been no warning history. It may prove a totally

unexpected finding, especially in an infant. Because of this possibility, if for no other, indirect intubation would be unwise at the outset, since an attempt to insert the tube in the presence of a foreign body could only result in further and probably far more serious damage. The foreign body, if present, will usually be found caught between the vocal cords, sufficient air passing by it to permit a moderately adequate exchange of air, until the subsequent swelling of the glottic tissues gradually narrows the lumen to the point of producing urgent dyspnea. With the appropriate instruments ready at hand and with such a possible etiologic factor in mind, the operator is in a position to deal with the removal of the foreign body in whatever method is indicated. With the foreign body removed the problem then resolves itself into a question of how far the laryngeal tissues have been traumatized and whether their reaction will subside sufficiently to render any further procedure unnecessary. Of this more will be said later.

2. *Acute Streptococcus Laryngitis.*—The second characteristic pathologic condition that may confront the laryngoscopist on examining the larynx is what I have chosen to designate as acute streptococcus laryngitis. By far the most serious of all the laryngeal infections, this condition, coming on suddenly or as a complication of a throat infection, has proved to be the most difficult to handle and the most fatal in its outcome. This last factor, indicated clinically by high fever and a rapid pulse, is due to the general toxemia so frequently manifested with this type of infection.

The appearance of such a laryngeal infection is quite characteristic. There is an intense redness of the glottic rim, with marked swelling of the arytenoids, to the point that often the vocal cords themselves are scarcely visible. Also the walls of the larynx below these cords are red and swollen, the whole larynx having a marked funnel-shaped appearance. Rarely is there any true membrane or crusting on either the true or the false cords, perhaps a sticky secretion overlying the mucous membrane surfaces. What is the most feasible treatment of this always serious condition? Two situations must be met. First, the laryngeal obstruction must be relieved, and, second, the accompanying toxemia, often more serious than the obstruction, must be appropriately treated. Not infrequently one relieves the obstruction only to find that after temporary improvement there is a gradual extension downward of the infection into the trachea and bronchi, with a reproduction of the same pathologic condition seen in the larynx. When this extension cannot be checked, the almost inevitable result is bronchopneumonia and a fatal outcome. In spite of any known form of therapy, some of these patients cannot be saved. The plan of attack must be one designed to afford the best possible chance of a fortunate outcome. To this end, the obstruction must be relieved first. Even in a larynx already swollen and with its lumen already narrow by inflammation, insertion of an intubation tube has a real appeal and has been used successfully in numerous cases. Its insertion is at times likely to prove difficult and to be followed by more edema of the arytenoids, to the extent that breathing through the tube will be handicapped. Moreover, the tube may be poorly tolerated by the laryngeal walls and immediately on its removal so much swelling may occur as to necessitate either its reinsertion or else a tracheotomy. With each insertion of the tube, further damage is done to the larynx and there is great danger of the production of ulceration and subsequent stenosis. Therefore, if palliative measures are proving inadequate in acute streptococcus laryngitis, I feel that the next step, following confirmatory diagnostic laryngoscopy, should be either intubation or preferably a tracheotomy, early enough to ward off, if possible, further downward extension of the infection. In such situations I have found it to be of the greatest value to insert gently, at the time of the laryngoscopy, a so-called Mosher life-saving tube, to be left in situ during the performance of the tracheotomy. This tube, although intended to be curved and to be put in in the indirect method, can be straightened out and introduced exactly as one would introduce a bronchoscope. Its advantage over the latter lies in its smaller diameter and extreme ease of placement. Such an arrangement greatly facilitates the location of the trachea, bringing it close to the surface, permits comfortable breathing for the patient during the tracheotomy, and enables the operator to proceed slowly and in an orderly fashion without the anxiety attending work on a dyspneic patient on whom the opening of the trachea may at any moment have to be hurriedly performed. The life-saver is withdrawn as soon as the tracheotomy tube is ready for introduction.

The result of this procedure is for the moment often dramatically successful and spectacular. If the inflammation in the larynx will proceed no further, all will be well. If not, serious complications are in store. They can best be combated by treatment of the general condition, first by the use of the antistreptococcus serum; secondly, by employing every known means to increase the body fluids; thirdly, by transfusion. As in any tracheotomy case, no pains must be spared to keep the tube opening free and clear and to provide ample moisture in the air about the patient. The treatment of extension of the inflammation downward into the bronchi and lungs is a vexatious problem and one beyond the scope of this paper.

3. *Diphtheritic Laryngitis.*—Probably the most common form of severe laryngeal obstruction is involvement of the larynx of the diphtheritic membrane. Fortunately it is amenable to definite therapeutic measures which in general yield good results. This is the type of case that has formerly been so frequently and often so successfully treated by indirect intubation. When the diagnosis was certain, indirect intubation in skilful hands has undoubtedly been thoroughly satisfactory. Since by direct laryngoscopy, however, other possible diagnoses can be ruled out and since the treatment of the larynx directly is equally satisfactory, I feel that the direct method is preferable. Often there is no diphtheritic membrane on the tonsils or fauces to give a clue to the cause of the trouble, and the signs and symptoms are only those of an unexplained laryngeal obstruction.

The exposure of the larynx in the diphtheritic type of case will at once reveal the typical membrane attached to various portions of the larynx, either the cords or the arytenoids or deeper on the sides of the glottis. The application of suction to such a larynx will result temporarily at least in the mechanical removal of a larger part of the membrane, with immediate relief of the dyspnea and improvement in the patient's condition. Once this has been accomplished, the operator may put the patient back to bed, administer appropriate doses of diphtheria antitoxin, and await developments. If there is any evidence of the recur-

rence of the obstruction, presumably due to reformation of the membrane, a second laryngoscopy is indicated for the further removal of the membrane. So long as the case progresses favorably, this method of procedure has frequently proved most satisfactory and the membrane, recurring less and less extensively, finally disappears. Such a plan, of course, necessitates the constant attention of the laryngologist and his readiness at any time for another laryngoscopy.

The other method of procedure in the diphtheritic case is the direct insertion of the intubation tube. This can readily be done at the time of the laryngoscopy and after aspiration of the membrane. With proper instruments the procedure is quite simple and satisfactory. Some form of open laryngeal speculum, such as that devised by Mosher, has proved more useful to me than any large form of the closed laryngeal speculum. The intubation tube is carried on the end of introducing forceps and slipped into place under direct vision without a particle of trauma. The string may or may not be left in place. Since the obstruction in this type of laryngitis is due primarily to the accumulation of the membrane and not to the sort of edema seen in acute streptococcus laryngitis, the introduction of the tube is not a matter of force and the proper sized tube for the age of the child will enter the larynx quite readily.

Once the tube is in place there arises the problem of after-care. Special nursing is absolutely essential, since the tube may be coughed up at any time and require immediate replacement. If it is not coughed up, it should not be left in place for more than forty-eight hours without some attempt being made to see whether the patient can breathe comfortably without it. To this end, the larynx is again exposed directly, observed as to the state of the membrane, and the tube removed by the use of the same instrument which introduced it. If after a fair trial it seems essential to replace the tube, it is again done as previously described. When this removal and reinsertion of an intubation tube must be done indirectly by any except the most expert operator, I am convinced that direct laryngoscopy is far less traumatizing and gives one a far better opportunity to size up the laryngeal situation and treat it accordingly.

The more difficult it appears to be to carry the patient to the point at which the tube is no longer necessary, the more likely it is that tracheotomy may prove necessary. One cannot continue intermittent removal of the intubation tube indefinitely and if after several trials one finds the tube still needed, a tracheotomy is the wisest procedure to prevent any form of chronic laryngeal involvement. Such a tracheotomy can be done with the intubation tube in place, which serves to maintain the airway and as a guide to the location of the trachea.

4. *Laryngitis Sicca.*—This form of laryngitis, characterized by the presence on the vocal cords, rarely on other parts of the larynx, of a gray, dry, crusting accumulation, presents problems quite apart from any form of acute obstruction. The condition tends to develop as a complication of a nasopharyngeal infection, usually with the pneumococcus as the bacteriologic factor. The child is first suspected of having an attack of croup, and there is a stridor quite suggestive of this diagnosis. It is, however, far more persistent and is accompanied by fever of varying degree. Dyspnea tends to increase and it soon becomes evident that some form of obstruction is present which requires investigation. It is in just this sort of situation that direct laryngoscopy has proved its value.

Inspection of the larynx reveals the typical dry, grayish crusts attached to the edges of the vocal cords. It is not a membrane in the same sense as the diphtheritic membrane since it does not bleed on removal and has no intimate attachment to the underlying tissues. Rather is it the accumulation of dried secretions in much the same way as they occur in the pharynx in a severe case of atrophic pharyngitis. The obstruction produced is essentially mechanical and it is by mechanical removal with proper forceps through the laryngoscope that these accumulations can best be handled. Removal, just as in the diphtheritic cases, gives immediate temporary relief. The problem is to prevent the recurrence of the crusts and, still more, to prevent their extension downward into the trachea. Once the extension begins to take place, much the same type of pathologic change occurs as is found in the so-called arachitic bronchitis following aspiration of certain vegetable substances. Such extension with its accompanying infection, toxemia and marked limitation of available lung tissue presents a grave and often fatal prognosis.

Here, again, if mechanical removal of the obstructing crusts proves in any way inadequate for satisfactory respiratory exchange, the insertion of the intubation tube is distinctly indicated and, particularly in this form of laryngitis, to be preferred to tracheotomy. The latter tends to facilitate the very thing to be prevented, namely, the access of unmoistened air to the trachea, this in spite of all attempts to moisten the air round the tube.

With the intubation tube in place and the patient temporarily comfortable, this so-called laryngitis sicca with its tendency to dryness of the respiratory mucosa presents a therapeutic problem all its own. In the first place it will be found that there is the greatest difficulty in maintaining an adequate fluid intake in these patients, particularly in infants. The presence of the intubation tube, although affording respiratory comfort, has a definite tendency to make swallowing uncomfortable and results in violent refusal on the part of patients to take fluids. The more they are forced, the more resistance they make. Moreover, if they are once induced to swallow, the mechanical presence of the tube tends to allow the fluid to "go down the wrong way," there is a violent coughing spasm, and when this has once quieted down the patients are in no mood to try the procedure again. Therefore the customary instruction to the nurse to "force fluids" is quite futile. The few spoonfuls of orange juice or water that can be forced down in this way will be far from adequate in accomplishing what is desired; namely, a profuse secretion and as moist a membrane in the trachea as possible. Nor will the usual expectorants so easily ordered by the physician solve the problem. They will function only if the body fluids are at a sufficiently high level to contribute the secretion which they tend to call out. Since the fluid intake is steadily failing, expectorants will not supply it. It will be noticed likewise in these patients that the urinary output is greatly diminished, as one would naturally expect. This tends to result in an acidosis which only aggravates the situation. How, then, can it be met? I am convinced from past experiences that it can be met only by an active introduction of adequate amounts of fluid by artificial measures. Introduction by rectum is slow, the amount absorbed is apt to be far less than the

amount expelled, and the procedure is tedious and irritating to the patient. I have come to feel that the introduction of large amounts of salt solution under the skin, given repeatedly, every day, as long as indicated, will prove to be the most valuable therapeutic agent that can be employed. I have observed cases treated in this manner with amounts of from 200 to 300 cc. given twice or three times a day which have shown improvement to be secured in no other way. One might feel that the introduction of the needle and fluid would be strongly resented by the patient and would tend to upset and weaken him. On the contrary, I have repeatedly observed a child, after the momentary discomfort of introducing the needles, go off to sleep while the fluid was running in, so grateful was it to have fluid supplied to its tissues. Such measures benefit the entire system and break up the vicious circle initiated by the first refusal to take an adequate amount of fluid by mouth. In addition, it counteracts the very dryness and tendency to crusting in the trachea and bronchi which forms the most unfavorable complication of this whole situation. Feeding by use of the nasal tube has been suggested by Tolle of New York, apparently with excellent results.

5. *Obstruction Due to Extralaryngeal Pressure.*—Certain acute inflammatory processes in the neck may result in such extensive infiltration of the adjacent tissues as to cause pressure on the larynx. Not only is there mechanical pressure on the larynx from the outside, but extension of the inflammation involves the larynx itself, with resultant edema of the epiglottis, arytenoids and glottic walls. Warning of such extension or pressure is given by the usual signs of laryngeal obstruction, and in addition there is usually a high degree of toxemia from the neck infection itself. Acutely ill from this infection, often unable to swallow, and with impending respiratory obstruction to make bad matters worse, these patients are in a most precarious position. Even if the neck lesion can be reached and drained by external or internal incision, the edema of the larynx may require many hours to subside, and this resolution may not take place soon enough to obviate the necessity of providing the patient with a temporary and more adequate airway. In such a situation I believe that no procedure will afford the results that can be secured from tracheotomy. Often this will mean an incision through tissues more or less edematous, perhaps actually infected. At times the trachea will be found markedly deviated to the opposite side, rendering the operation more than usually difficult. Once accomplished, however, this provision for comfortable respiration may make all the difference between the life and the death of the patient. Any attempt at intubation in such cases will only serve to increase the edema which will soon bury the tube in the soft tissues of the larynx. Such cases are apt to prove most trying and to require all the courage and fortitude that the surgeon can muster.

6. *Postoperative Laryngeal Edema.*—Occasionally, following even the most skilful bronchoscopic manipulations with proper sized tubes, there will follow a temporary but genuinely acute laryngeal obstruction. With the cause so well understood and the prognosis of resolution so good, I believe that intubation is the ideal method for relieving such obstruction. It will tide the patient over the relatively short period of laryngeal edema and obviate many a tracheotomy that might otherwise be regarded as essential.

CONCLUSION

Such, then, are the outstanding types of laryngeal obstruction which confront the laryngologist from day to day. His methods of handling them must vary greatly according to the individual situation and his personal reaction to it. The principles to guide one must resolve themselves into the following:

1. A careful consideration of the patient's condition, and a decision as to whether it is or is not improving under preliminary expectant treatment must be made.
2. If reasonable time for observation demonstrates that improvement is not taking place, laryngoscopy is indicated without further delay to determine the exact cause of the obstruction.
3. Depending on the laryngoscopic observations, the treatment appropriate to the pathologic conditions should be instituted.
4. After-care must provide adequate fluids for the body tissues and maintain a free respiratory exchange.

319 Longwood Avenue.

ABSTRACT OF DISCUSSION

DR. NEIL BENTLEY, Detroit: Dr. Richards has ably brought to attention some of the problems in acute laryngeal obstruction. While I agree with him fully on the great importance of direct laryngoscopy, I prefer to make my first examination with the mirror. It affords much information and certainly is more convenient to the patient. Moreover, in cases in which a foreign body or a retropharyngeal abscess is suspected I much prefer having a roentgenogram made prior to a direct laryngoscopy unless the case is so urgent that one cannot wait. Dr. Richards has wisely called attention to the importance of noting any change in the temperature and pulse rate.

The rate and quality of the respiration must be most accurately checked. The chest must be carefully watched. A roentgenogram of the chest is often invaluable in detecting early lung involvement, such as abscess, bronchopneumonia and beginning obstruction. Cyanosis is usually an indication that the wait has been too long.

All patients with laryngeal diphtheria should be hospitalized. Intubation is required in many of these cases, and there will be much less delay in giving such necessary relief if the patient is already in the hospital.

I fully agree with Dr. Richards that every hospital for contagious diseases should have a laryngoscopist on its active staff.

In the hospital at Detroit for contagious diseases the intubations are done by the indirect method and extubations by the direct method.

In the Detroit hospital the tubes are left in for about seventy-two hours unless the case warrants earlier removal. There seems to be no harmful results in the twenty-four hour additional time over that set by Dr. Richards. The cases of extralaryngeal cellulitis in the neck which obstruct the larynx are among the most serious conditions with which it is necessary to deal. Every effort must be made to localize the process, but if this cannot be done fairly promptly I am strongly in favor of free incision into the neck, going down to the sheath surrounding the deep blood vessels if necessary. Frequently a focus of pus will be found. In all cases I pack with iodoform gauze, leaving the wound freely open. In this way a wall of adhesions is formed blocking as well as possible the entrance into the mediastinum and assuring maximum drainage.

DR. B. W. PASTERNACKI, Detroit: I will report a case of dislocation of the inferior cornu of the thyroid cartilage. A man, aged 52, previously healthy, with good family history, was lying in bed, cyanosed, almost aphonic, and only with great difficulty able to whisper some words. The patient had fallen from the top of the stairs leading to the attic, four and one-half hours before, and this condition had developed. Laryngoscopic examination, on account of edema and other unfavorable surroundings, was not successful, and the patient was too weak to permit any extensive examination. Palpation revealed at once

that it was a case of dislocation of the inferior cornu of the thyroid cartilage, the anterior part of the cricoid was distinctly forward, and the pomum adami was downward and backward. After a brief consultation and a statement from my colleague that the patient could not live in that condition more than twenty minutes, I asked him to help me reduce the dislocation. I instructed him to sit in front of the patient, the patient sitting up in bed, his back supported by one man, another holding his head, and my colleague was instructed to pull both alae of the thyroid with his thumbs upward and forward. I, standing back of the patient, placed my thumbs on the posterior part of the cricoid, with my index fingers at the same time on the anterior part of the cricoid, pushing the cricoid downward with my thumbs and backward with my index fingers. A loud sound like the snap of fingers was heard and felt by me distinctly. The patient at once felt relief, being able to whisper. He was given a laxative and ice application to the throat. Next day he articulated his words quite well. As regards deglutition and phonation, he has not had any complaint. The patient died of myocarditis last December, thirty-four years after the accident, at the age of 86.

DR. HARRY L. BAUM, Denver: Dr. Richards brings out the importance of the general appearance of these patients. In my experience the amount of obstruction from which they suffer, the actual respiratory embarrassment present, is not always indicated by the patient's color. Laryngeal obstruction of this type is essentially slow in onset and development and an extreme degree of cyanosis should not be expected. As a rule, there is present a type of cyanosis which I have called "pale cyanosis," in which the patient is not so much blue as pale. This is caused by the gradual development of the obstruction over a period of hours or even days, and, although the obstruction rarely becomes complete, the patient is sooner or later exhausted by the prolonged struggle to breathe through a constricted airway. Thus pale cyanosis is frequently even more significant than dark cyanosis and fully as indicative of the necessity for intervention, although the latter seems to be the symptom most often looked for by the inexperienced observer. Dark cyanosis should not be awaited as it will frequently not supervene, and in the meantime if one does wait for it the patient will pass beyond the reach of aid. So far as taking care of these patients in the home is concerned, it is entirely out of the question. Any patient suffering from respiratory embarrassment should be hospitalized. I invariably refuse to treat such a patient in the home after the immediate emergency is met. I am not quite clear as to the differentiation between streptococcic laryngitis and laryngitis sicca, as made by the author. It is true that the majority of these cases of acute laryngitis are streptococcic and a certain percentage do form dried secretion along the edges of the cords. This is a characteristic I have often observed but I do not consider it a clinical entity. It is only one of the common manifestations of the disease. The obstruction, however, is always subglottic and due mainly to swelling and not to membrane or crust formation, even when present. Occasionally a patient is so relieved by the aspiration of exudate, whether dried or liquid, that intubation is at least temporarily avoided. However, when in doubt, intubation should most certainly not be withheld. In cases of laryngotracheobronchitis a highly effective treatment, one that has produced results in some cases little short of marvelous, is the use of foreign protein in the form of mixed respiratory vaccine. Doubtless other proteins would produce the same results. It must be given in large doses in order to produce a marked systemic reaction and my custom in severe cases is to administer from 6 to 8 minims (0.36 to 0.5 cc.) as often as every six hours, even in infants and very young children, until marked improvement is manifested. This is usually in from twelve to twenty-four hours.

DR. E. LEE MYERS, St. Louis: I agree with Dr. Richards in the main, but there are some things to which I cannot reconcile myself. For instance, in some of my successful cases in which I thought I was about to do a tracheotomy, inside of twenty-four hours after the injection of foreign protein (I use milk) the patient recovered. These cases do not come in often, although the last year there has been an epidemic in St. Louis of what we think is streptococcic infection. These cases are not all well worked up when one gets them. The patient comes to the hospital, a laryngoscopic examination is made, and the epiglottis and larynx are found to be swollen. A nurse is obtained and in four or five hours the patient is improved under ice and epinephrine. I have had good results from epinephrine, but in one case in which there was a bad throat the man had to be tracheotomized. It was easy, but the patient died. I had overlooked the point that this man some four or five days prior to his trouble had had a lower molar removed. That emphasizes the fact that when one is dealing with an acute laryngeal obstruction there is liable to be trouble. Hirsch of Vienna brought out the point that if one finds the epiglottis swollen more on the lingual surface than the laryngeal, generally there will not be trouble.

DR. PHILIP H. DECKER, Williamsport, Pa.: One trouble I have had in two or three cases in small children is the fact that after I have done a tracheotomy I have difficulty in keeping the tracheotomy tube open. Even though two tubes are used, the inside tube being cleaned every two or three hours, still I would get obstruction by coagulated material below the tube, and I am certain that in one case the nurse saved the life of the patient two or three times by having a tonsil suction machine set up with a metal catheter on the end connected so she could insert it almost to the bifurcation of the trachea, and she could pull out strings of débris that would probably have been fatal to the patient in a few minutes. I am sure that if there is a suction machine near these patients much of the débris can be removed by having a silver wire catheter bent to fit inside the tube and inserted from 1½ to 2 inches, almost to the bifurcation. A rubber catheter has insufficient lumen and does not work as well for me as the metal one. Especially in cases of laryngitis sicca, in which there is so much secretion dropping into the trachea, I have had two or three cases in which I am sure the patient would have died had not this material been sucked out at rather frequent intervals by the nurse.

DR. JOSEPH I. KEMLER, Baltimore: I should like to add one case, evidently edema of the glottis. A young woman had trouble in breathing. She went to bed for two weeks, and everything subsided. I could find no cause, except that she was working hard, and she had badly infected tonsils. Six months later she had another attack, and as she walked into the room I heard a bark just like croup. I looked into the larynx and right beneath the cord were two cushions extending over the cord, making it very hard to breathe. I used 5 per cent cocaine with a little epinephrine and with a curved knife I made an incision, which gave relief. She had these attacks every few months but finally began to have them less often, and for the last two years she has not had an attack. I had one case of laryngeal diphtheria in which the membrane extended not only into the trachea but came up from farther down. But twenty-four hours later I used suction through a catheter in the tracheotomy tube, and I think I saved the patient's life.

DR. LYMAN G. RICHARDS, Boston: The title of this paper might well have been called "Problems in Laryngeal Obstruction in Children" since the vast majority of these cases occurred in individuals under the age of 12. Dr. Bentley is quite right in saying that a roentgenogram should be included in the primary examination, since it is of undoubted diagnostic importance in ruling out foreign body and differentiating between the various other forms of obstruction. I am grateful to Dr. Baum for his remarks. In any consideration of laryngeal obstruction one should certainly rule out cardiac disease or a pneumonic infection, both of which often produce urgent dyspnea. Nothing was mentioned in the brief presentation of the paper about cyanosis. True cyanosis appears very late in most of these patients, who may often be in a dangerous condition when they are apparently adequately supplied with oxygen and when their color is far from being truly cyanotic. In regard to laryngitis sicca, my feeling has been that removal of the crusts has so often resulted in clearing the airway that there was not much subglottic edema underlying them. If there were some other form of treatment it, of course, would have to be instituted. I have had no experience with the use of foreign protein, but any measures tending to relieve this condition merits thorough

and unbiased trial. Like Dr. Decker I too have used the catheter for intertracheal suction. In spite of all these measures there are some cases in which the infection rapidly descends into the terminal bronchi and which end fatally. In these I feel strongly that all measures directed toward increasing the patient's fluid intake will prove one of the most valuable therapeutic agents available.

MALARIAL THERAPY IN DEMENTIA PARALYTICA*

H. R. UNSWORTH, M.D.
NEW ORLEANS

The De Paul Sanitarium in New Orleans, an institution for the treatment of nervous and mental disorders, is advantageously situated in regard to climate and for securing malarial organisms. Rarely is it necessary to wait any prolonged period of time before obtaining the tertian type of organisms used in this work. It is also noteworthy that we get cases that are not of the usual state institutional type; that is, dilapidated patients, but also cerebrospinal syphilitic patients who are just beginning to manifest psychic symptoms of dementia paralytica and in whom serologic examination reveals early changes in the paretic zone in the colloidal gold test. On account of this wide variance in the grade of patients with dementia paralytica it has given me an opportunity to conclude distinctly that malarial therapy is undoubtedly best in these early cases and that little improvement may be expected from those in the late stages of central nervous system syphilis, and when the colloidal gold reduction is particularly heavy in the first five tubes.

In the last few years the greater number of younger patients with dementia paralytica in institutions has forcibly impressed me. Formerly, and particularly before the advent of intravenous arsenical therapy, the average patient with dementia paralytica was usually in his late forties or fifties. Is the explanation of this to be offered on the basis of a more virulent syphilitic organism, or more complex problem of adjusting socially and economically, thereby lowering the general resistance of the patient? Or is it due to the promiscuous and unintelligent introduction of intravenous arsenicals? Frankly, I feel it is the latter.

Dementia paralytica, briefly, is a meningoencephalitis, and the outstanding pathologic feature is the active formation of new vessels in the cortex of the brain, with dilated capillaries and widened adventitial lymph spaces. These lymph spaces are filled with an exudate of lymphocytic and plasma cells, and throughout the brain there is a focal and diffuse and tract degeneration. The very nature of this pathologic condition suggests to my mind the hopelessness of any pronounced improvement with chemical therapy and the actual danger of promoting further destruction of tissues.

In reviewing the neuropathologic changes in dementia paralytica it has especially impressed me that there is a definite reason for the difference in improvement in these unfortunate patients, even though all had received the same malaria organisms, the same elevation of temperature and approximately the same number of paroxysms.

Appreciating the chronic and progressive character of the changes in the central nervous system, knowing the extensive involvement of the cortical area particularly, and associating clinical regression in direct ratio to the amount of vascular involvement with associated gross nervous tissue destruction, I have often thought that primarily there was something in the previous treatment of these cases that brought about this difference. Realizing the extent of destruction in the arterial system and believing that its patency would tremendously decide the ultimate degree of recovery in these patients, and with the knowledge that the condition is already one of a specific endarteritis, I became interested, through the idea of a superimposed chemical endarteritis, as to the relationship of previous intravenous arsenical therapy and the improvement expected in proportion to previous chemical treatments. Critically analyzing the results obtained in the twenty-eight patients whom I have successfully inoculated with malaria, I saw that the patients who did badly and deteriorated rapidly afterward were those who had been energetically treated with the arsenicals before inoculation with malaria. Unfortunately I have been unable to corroborate these clinical phenomena with microscope or postmortem study. The work of Dr. Walter Freeman on material obtained from these types of cases at autopsy, however, rather confirms the clinical differences as related to the extent of tissue destruction and its possible repair with functioning blood vessels and nerve tracts.

Allowing for greater recognition of cases of dementia paralytica from the serologic interpretations, especially since the colloidal gold test with its associated reductions in the early tubes, and granting this to be true because of the greater number of routine spinal fluid examinations, I am speaking of the patient with dementia paralytica not alone from the spinal fluid observations but from the clinical standpoint, presenting the typical symptomatology of early dementia paralytica.

In selecting patients to be given malarial fever, it has been my custom to consider favorably only those who had received little or no arsenical therapy; those of a vigorous physique and otherwise organically sound, in whom the colloidal gold reduction showed only an incomplete reduction in the paretic zone. It has been these types in whom the response has been most gratifying, who still, some after three years, maintain their social and economic adjustments, and in whom the serologic observations have cleared remarkably. The cases showing little or no improvement following malarial treatment have been those of long standing infection, profound colloidal gold changes in the paretic zone, poor physical make-up and usually with some visceral disease; and, above all, those in which heavy arsenical intravenous medication had been used.

The method of inoculating these patients with malarial fever has been in most instances subcutaneously between the scapulae, in quantities of from 5 to 10 cc. In some instances I resort to the intravenous introduction of 3 cc. of malarial blood besides the subcutaneous inoculation.

In only two cases have I failed to produce malaria successfully. In one of these, I had reason to feel that the patient was immune as the result of previous malarial infection, and in the other, the failure has not been satisfactorily accounted for.

CONCLUSIONS

1. It appears that late neurosyphilis responds better to malarial therapy than to the arsenical treatments.
2. All vigorous arsenical therapy appears clinically harmful to patients with profound dementia paralytica.
3. Patients who have previously received heavy arsenical therapy respond little if at all to the malarial

* Read before the Section on Nervous and Mental Diseases at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

treatment and, in some instances, the clinical picture following malarial inoculation in these cases has suggested that it might be contraindicated.

4. Young, physically vigorous, previously untreated cerebrospinal syphilitic patients are the ideal patients to receive and benefit from malarial therapy.

5. Organically unsound patients with profound colloidal gold changes in the spinal fluid are definitely and clinically harmed by malarial fever treatment and do better by receiving large doses of iodides intravenously and mercurial rubs.

6. Arsenicals, to my mind, are definitely contraindicated in the treatment of late nervous syphilis. They appear to promote a rapid mental deterioration in some instances.

Union Indemnity Building.

ABSTRACT OF DISCUSSION

DR. JOSEPH C. MICHAEL, Minneapolis: In the ambulant clinic are now seen an increasing percentage of quite healthy-looking men and women who have been treated with induced malaria for dementia paralytica. As far as the effects of malaria on patients treated previously with arsenicals, as compared with the patients not so treated, is concerned, I cannot say much, except that it is my experience that quite a number of patients have been treated previously with arsenicals and that among those some good recoveries do occur. I can understand that an arsenical which causes extensive spirochetal death and considerable liberation of toxins may be responsible for heightened inflammatory reaction. I think it is a fact that, all in all, the untreated patients as well as the patients that develop dementia paralytica rather abruptly give the most prompt results with malaria treatment.

DR. CHARLES SMITH, Battle Creek, Mich.: I continue somewhat reserved in my opinion as to an ultimate recovery in dementia paralytica but I am certainly impressed with the favorable influence sustained in such cases treated by malarial inoculation. I have treated and observed the reaction of malaria in 320 cases of dementia paralytica. The benign tertian type of malaria organism was used. The direct method of inoculation was used as no advantage could be seen to be gained in the pooled method. Except for the prolongation of the incubation period, as good results were obtained by injecting 8 cc. of the donor's blood, 4 cc. intramuscularly, the needle being gradually withdrawn and the remaining 4 cc. being injected subcutaneously. This blood was taken from the donor immediately after the chill. Following the onset of the chills the patient was put to bed and given all the water he cared to drink. Charts were kept, the temperature, pulse and respiration being recorded every four hours. The bowels were moved daily either by magnesium sulphate or by enemas. Bed pans and urinals were used when the pulse was above 90 and the temperature above 99 F. Tincture of digitalis, 8 minims (0.4 cc.), was given every four hours and one-half teaspoonful of sodium bicarbonate, in a glass of cold water, every three hours. The patients were allowed to have ten, twelve or even sixteen febrile attacks, with a rise of temperature to 102 F. or higher, when it was terminated by the administration of quinine sulphate, 10 grains (0.65 Gm.), three times a day for ten days. The patients were then given solution of potassium arsenite, 10 drops, three times a day, after meals, for thirty days. Great care should be exercised in the selection of cases for malarial inoculation. Little hope for improvement or recovery is to be expected by inoculating patients in the last stage of the disease or those greatly debilitated or those cases having cardiac, nephritic or pulmonary disorders. Cases of latent tuberculosis have been made active during a course of malaria therapy and it has been found that obese patients do not withstand the treatment very well. During the course of treatment several patients developed a mild generalized jaundice, which gradually cleared up with the intravenous injection of sodium thiosulphate in gradually increasing doses from 0.75 Gm. until a maximum of 1 Gm. was attained in ten doses. Convulsions occurred in a few cases during the course of the treatment and, as a rule, were considered as a grave accompaniment or complication. When the convulsions were status epilepticus in type the patient was given morphine, one-fourth grain (16 mg.), at the same time that ether anesthesia was administered. The bowels were cleansed thoroughly with a Watkin's enema and chloral hydrate, 40 grains (2.6 Gm.), were administered by rectum. In all cases a spinal drain was done, the fluid being under considerable pressure. Spinal drainage alone has been found to check convulsions. The efficacy of treatment was measured, first, by the clinical improvement and second by laboratory test results.

DR. THOMAS J. HELDT, Detroit: Being connected with a general hospital instead of an institution in which patients may be confined for lengthy periods of time, I soon was forced to the conclusion that some method suitable to noninstitutional cases was desirable. Nov. 19, 1925, I first sought to treat such patients through the malarial method and continued to do so until May 5, 1926, having inoculated four patients in that interval. I promptly found that in a general hospital there is not sufficient control of a patient with dementia paralytica, especially during his period of malarial incubation, to permit of adequate supervision. The late Dr. Joseph E. Bennett, then superintendent of the Eloise Hospital, Eloise, Mich., followed our experience with the malarial treatment with much interest and undertook the further development of that form of treatment. The work of Dr. Bennett was reported by himself, Polozker and Altshuler in 1929. Recently, through the graciousness of Dr. Polozker, I was informed of their latest percentages in regard to the treatment under consideration. I will quote a few of the outstanding results. From May 5, 1926, to June 1, 1930, they have treated 441 cases. All were unselected. Many would not have been treated except for the insistence of relatives. Eleven per cent returned to work. Thirty-one per cent were improved but could not be paroled from the institution. Another 11 per cent were unimproved, remaining either stationary or deteriorating further. Five per cent were still under active treatment, June 1, 1930. Thirty-two per cent died during treatment. The loss of the patient during treatment or shortly after was another important factor in our consideration of a method of treatment for these patients. We turned to foreign protein therapy, using polyvalent typhoid vaccine as outlined in 1927 by Gundy, Hall and Gerty. We have treated some fifty cases by that method but are not ready to report our results. The paramount consideration regarding malarial treatment for patients with dementia paralytica is that the patient be selected. This is all the more true for those working in general hospitals, clinics or private practice. The patient with dementia paralytica is usually brought when he is unable to take care of himself and frequently he is then very uncooperative. Accordingly, he must first be brought under therapeutic subjugation. In a general hospital, setting the foreign protein therapy usually accomplishes this promptly and effectively. At the present stage of antisyphilitic therapy it is no longer a matter of the treatment for dementia paralytica but a matter of choosing treatment carefully, malaria for some, diathermy and other hyperpyrexia methods for others. For some, tryparsamide is the drug of choice, and, for still others, mixed treatment may be most important.

DR. WALTER FREEMAN, Washington, D. C.: What Dr. Unsworth says regarding the effect of previous antisyphilitic treatment in these malaria cases interests me greatly. Without casting any aspersions on his paper I would call to mind the old saying having to do with the innate cautiousness of the angels. If we have been too much on the side of the angels in discussing this problem it is because we would certainly, if we took his view, have the syphilologists on our necks. I think it will require a considerably larger series than Dr. Unsworth has had to allow us to say definitely that previous antisyphilitic treatment has made the patient a bad risk for malaria. One of the factors to consider is the prolongation, or the hastening, whichever view one takes, of the onset of the nervous manifestations following the initial infection. If we can prove that the latent period is prolonged by antisyphilitic measures we should be able to say that the process has been slowly going forward and that the malaria cannot interrupt it.

Our own experience has been somewhat along these same lines, indicating that individuals who had received massive treatment before the malaria did not do well afterward.

DR. IRA M. ALTSHULER, Detroit: From the series of over 400 cases mentioned by Dr. Heldt, an attempt was made in the beginning to select cases free from serious constitutional derangements such as heart trouble, chronic kidney conditions and hypertension. Later on, however, because of the request of the patient's relatives, it became necessary to treat any case that came along. Experience has shown that the selection has no bearing on the ultimate outcome of the cure. Patients died during treatment who were considered good risks. On the other hand, patients with marked kidney trouble or decompensated heart stood the treatment well. The height of the temperature has no bearing on the recovery, nor does the duration of fever matter. The same thing is true of the number and severity of chills. Some observations suggest that it is not the fever that is instrumental in the cure; I mean not the fever per se, but rather the expulsion or linking out of the spirochetes from the parenchyma of the brain. This fact raised the question of following up the treatment with malaria by some antisyphilitic medicamentation.

DR. CLARENCE A. NEYMANN, Chicago: I would like to ask Dr. Unsworth how he arrived at the diagnosis of dementia paralytica in these cases. He spoke of a low colloidal gold curve; if I remember rightly, the colloidal gold curve is due to the interrelation of globulin and albumin present in the spinal fluid, the globulin acting as a precipitating agent and the albumin as a protection against precipitation when mixed with the colloidal gold solution. If he did not get "high colloidal gold curves"—and by that I understood him to mean typical paretic gold curves—I raise the question as to whether these cases were clearly dementia paralytica or whether they were not perhaps cases of advanced cerebrospinal syphilis without parenchymatous involvement.

DR. M. T. KOENIG, Elgin, Ill.: I had about 150 cases of malaria treated. Among the patients were many who had had arsenical treatment. It is true that some of them did not withstand malaria, and in my opinion that was due to the fact that too extensive arsenical treatment naturally introduced nephritis, and malaria superimposed on the nephritis is quite a severe ordeal for the patient. On the other hand, some patients were not in very good physical shape and I wanted to give them malaria. Because they were poor risks I hesitated. I started them on tryparsamide, and tryparsamide would usually improve their physical condition to such an extent that malaria would be possible for them. Of course, malaria was given after I was assured that arsenicals were no longer present in the body. I also want to ask Dr. Unsworth about arsenicals, especially tryparsamide after malaria. In my experience, this has been very good for the patients.

DR. H. R. UNSWORTH, New Orleans: In regard to what I meant by "early dementia paralytica," I stated that from the clinical standpoint and particularly from the psychic side. I understand perfectly well that from the serologic standpoint such a patient is not a true case of dementia paralytica unless he has the pathognomonic zone and a colloidal gold reduction. However, the case is often dementia paralytica long before there is any decided reduction in the colloidal area, so far as the patient will certainly develop all the symptoms if he doesn't receive treatment. I am speaking of the early clinical case. There has probably been some misunderstanding in regard to arsenical therapy following malarial therapy. I do use the arsenicals but to a very minor degree. That is, I never give more than 0.3 Gm. neoarsphenamine intravenously at five-day intervals. I give it more as a systemic tonic than for any other reason. I keep up iodides and mercurial rubs alternately. Of course, twenty-eight cases is nothing to get excited about. However, it has given me an idea that patients with dementia paralytica do badly following malarial therapy. There are other things besides malarial treatment. A good deal has been heard about deaths following malarial fever. I have never seen that. If many deaths occur following malarial inoculation, when other than the tertiary malarial type of organism is being given, the mortality will be high. The tertiary type is easily killed by quinine and neoarsphenamine, so that the patients are probably being inoculated with a mixed infection of the estivo-autumnal type and the tertiary, because I have never seen a death from tertiary malarial fever in my life either in this particular type of work or in general practice or in the malarial countries in Louisiana. I am inclined to believe, therefore, that the mortalities are due to other than tertiary malaria, either through mixed infection or through some superimposed organic disease.

THE AGE OF PATIENTS OPERATED ON FOR SENILE CATARACT*

HARRY S. GRADLE, M.D.
CHICAGO

During a recent visit to some of the continental clinics, I was impressed by the disparity in age between the patients operated on for senile cataract there and at home. In order to determine whether that was merely an impression or whether such a disparity really existed, I sent a letter to a few of the leading ophthalmic surgeons in various parts of the world asking for the ages in their last 500 or 100 cases of senile cataract extraction, excluding juvenile, traumatic and complicated cataracts. The following surgeons were kind enough to reply, at the same time authorizing me to utilize their statistics: Benedict of Rochester, Derby of Boston, Ellett of Memphis, Elschnig of Prague, Kalt of Paris, Knapp of New York, Meller of Vienna, Sinclair of Edinburgh, Van der Hoeve of Leiden, Wessely of Munich, and Wright of Madras.

A compilation of the statistics gleaned from these sources is best shown by the accompanying self-explanatory table:

Age of Patients by Decades

Operator	Cases	20-30	30-40	40-50	50-60	60-70	70-80	80+
Benedict	571	0.7%	4.0%	6.8%	21.9%	35.0%	25.2%	6.4%
Derby	100	0.0%	0.0%	6.0%	20.0%	45.0%	28.0%	1.0%
Ellett	500	0.6%	3.8%	9.1%	22.0%	32.4%	27.2%	4.6%
Elschnig	1,000	0.0%	0.7%	6.6%	21.1%	41.8%	27.2%	2.6%
Gradle	100	0.0%	0.0%	7.0%	16.0%	39.0%	26.0%	12.0%
Kalt	500	1.0%	1.6%	6.8%	18.8%	37.6%	30.6%	3.8%
Knapp	100	0.0%	1.0%	1.0%	24.0%	41.0%	27.0%	6.0%
Meller	500	0.0%	0.0%	3.0%	20.2%	40.4%	33.2%	3.2%
Sinclair	250	0.8%	2.0%	4.0%	21.8%	38.8%	28.8%	4.0%
Van der Hoeve	100	0.0%	0.0%	2.0%	16.0%	39.0%	31.0%	12.0%
Wessely	509	0.0%	0.0%	2.9%	12.6%	36.9%	41.7%	5.9%
Wright	500	0.2%	4.4%	15.8%	29.6%	41.2%	8.4%	0.4%
Average 4,730 cases		0.21%	1.40%	5.86%	20.28%	38.95%	27.74%	5.56%
Caucasian average 4,230 cases		0.23%	1.21%	5.04%	19.51%	38.83%	29.58%	5.60%
Indian average 500 cases		0.2%	4.4%	15.8%	29.6%	41.2%	8.4%	0.4%

The addition of the figures from the Wright Clinic alters the averages somewhat, particularly in the third, fourth and fifth decades of life. Consequently, the Caucasian averages have been grouped for the sake of comparison with the Indian averages. Discussion of the factors causative of these differences had best be left to Colonel Wright, who has the first-hand knowledge of Indian conditions.

Graphically, these statistics may be presented as in chart 1, in which the upper line represents the maximum, the lower line the minimum, and the middle line the average.

It is rather surprising that there should be such a close coincidence in the age of patients operated on for senile cataract, in view of the statistics having been

* Read before the Section on Ophthalmology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

drawn from such widely different sources. *A priori,* it was rather anticipated that the operators who performed intracapsular extraction in the majority of cases, notably Elschnig, Knapp, Ellett and Kalt, would offer a lower age curve than those who did the combined extraction, but in actuality the differences proved to be infinitesimally small. This is best illustrated in chart 2, in which the broken line represents the average age curve given by the intracapsular operators (Elschnig,

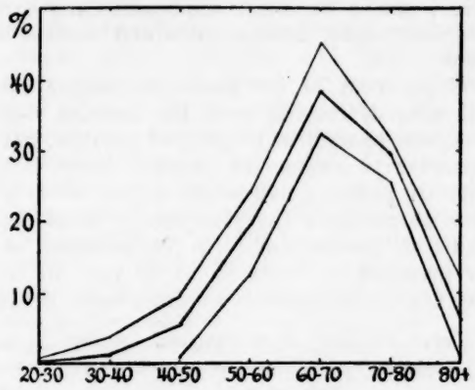


Chart 1.—Graphic representation of maximum, minimum and average age of cataract patients.

Ellett, Knapp and Kalt in a total of 2,100 cases), and the solid line the average age curve of the extracapsular operators (Benedict, Derby, Van der Hoeve, Wessely and Gradle in a total of 1,380 cases).

In only two of the series of cases was the actual age of each patient available. In the Knapp series the average age at the time of operation was 64.53 years; in my series the average age at the time of operation was 65.29 years, a difference of three-fourths year, which can be accounted for by the comparatively small number of cases in these series.

SUMMARY

The age curves of 4,730 patients operated on for senile cataract by twelve different operators in various parts of the world showed surprising unanimity.

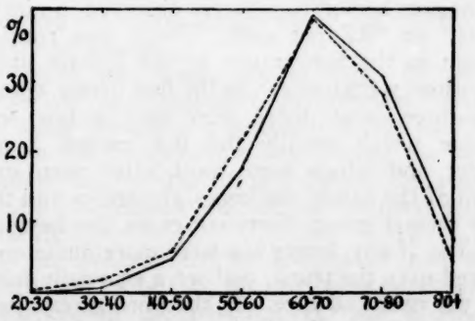


Chart 2.—Graphic comparison of age of cataract patients with intracapsular and extracapsular extractions.

Practically 40 per cent of all senile cataract operations are performed between the age of 60 and 70 years, with an average of 65.

The nationality of the patients and the type of operation, whether intracapsular or extracapsular, seems to play but little rôle in the age curve, although a noticeable difference occurs in comparing the ages of Caucasian and Indian patients.

58 East Washington Street.

ABSTRACT OF DISCUSSION

DR. WALTER R. PARKER, Detroit: I tabulated the age of patients in the last 600 cases of uncomplicated cataract operated on at the University of Michigan hospital. The results were almost identical with the average result published by Dr. Gradle. It would have been interesting if Dr. Gradle had extended his investigation to include the visual results obtained in each decade. I have an impression, although I have not confirmed it by statistics, that the average results following cataract extraction between 30 and 40 years of age would not be as good as those obtained between 60 and 70. As Dr. Gradle points out, it is somewhat surprising that the average age of intracapsular extraction is not lower than that in cases in which a capsulotomy is performed.

DR. HARRY S. GRADLE, Chicago: Some rather interesting comments were made by the various surgeons who contributed to the statistics herein given and with their express consent, I shall read an abstract of a few:

Professor Elschnig of Prague: "The comparison between the Caucasian and the Indian people furnishes good proof for the words which Hirschberg back in 1898 wrote in the History of Ophthalmology: 'Under the glowing sun of India, cataract ripens fully twenty years earlier than with us.' . . . I would refer to one other factor which seems to be rather decisive for the age of senile cataract patients and that is the intelligence of the patients and the demands made on their vision. The lower the state of civilization, the less is the demand as to vision. I observed in my visit to America that the percentage of glass wearers is four to five times greater than in our country. The cause is not to be found in a larger number of ametropes, but in a greater interest in good vision. . . . It would be interesting and possibly very important if your statistics could be elaborated to embrace the professions of the patients, a point that I touched on in my report on "Occupational Cataract" in the fourth Reunion de la Commission internationale permanente pour les maladies professionelles."

Prof. Van der Hoeve of Leiden: "Will you not stress in your paper very strongly the fact that cataract is operated on in India earlier than in Europe and America. We see that no less than 41.2 per cent of the cataracts among Indians were operated on before the age of 60, while among the Caucasians it was only 25.99 per cent. Above the age of 70, we find a percentage among the Caucasians of 35.18, while among the Indians it was only 8.8. So that we may say that in America and Europe cataract is operated on after the age of 70 some four times as frequently as in India. Stronger evidence than your statistics for the fact that cataract is operated on earlier in India than in Europe and America cannot be given, whatever the reason may be."

Lieut. Col. R. E. Wright, Madras, India: "It is curious that there should be such a difference between the Indian and Caucasian figures in your comparative statement, but exactly what it may mean, I have no idea. . . . When I saw you were comparing 4,230 Caucasian cases with 500 Indian cases, I thought it would be a good thing to give you an equal number of Indian cases so that the figures might be more strictly comparable. With the larger number, we still find that the Indian percentages remain practically what they were when worked on the first 500 I gave you."

Specialism the Result of Progress.—The fundamental factor in the present increase in specialism is without doubt the progress which has been made during the last two or three decades in the various sciences which underlie the art of medical practice. Researches in anatomy, embryology, physiology, physics, chemistry, pathology, and bacteriology have so extended our knowledge of disease processes in man that, in spite of a lengthening of the period of study, it has become quite impossible for any individual to acquire an intimate understanding of all the broad fields of modern medicine. In the four years' course of the medical school the student can get little more than an introduction into the so-called premedical sciences, and he learns of them only what is necessary to enable him to grasp the basic facts on which medical practice rests.—Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

MENINGOCOCCIC MENINGITIS

A CLINICAL STUDY OF ONE HUNDRED AND FORTY-FOUR EPIDEMIC CASES *

K. C. SMITHBURN, M.D.
G. F. KEMPF, M.D.; L. G. ZERFAS, M.D.
AND
L. H. GILMAN, M.D.
INDIANAPOLIS

The present epidemic of meningitis in Indianapolis began in November, 1929. This report includes cases admitted to the Indianapolis City Hospital between Nov. 11, 1929, and April 1, 1930. One patient was received in November, 52 in December, 22 in January, 44 in February, and 25 in March. Less than ten other patients either died without treatment or were treated elsewhere. The epidemic is still in progress, cases being admitted at the rate of about fifteen a month. The disease at present appears to be less virulent than during the early months.

Practically 90 per cent of the early cases were employees or relatives of employees in two departments of a large industrial concern. Later, however, contacts were from several other sources, and eventually a considerable number could not be traced. Eighty-eight patients were white and fifty-six were Negroes. During the early weeks of the epidemic, almost all patients were received from homes which were unhygienic and insanitary, poorly ventilated and heated, and in which there was close contact between members of the family. As cases became more scattered and contacts more difficult to trace, a small number of patients came from better homes. Eleven families furnished from two to four cases each, comprising a total of thirty cases.

Not only have the exhaustive studies by Flexner [1] and his associates of a large series of cases over a period of several years contributed greatly to the knowledge and treatment of the disease, but their reports also include complete surveys of the literature. We shall therefore refer chiefly to these and other papers concerned with some phase of the disease we wish to emphasize.

MANNER OF OBTAINING DATA

Histories of the patients were of necessity obtained from relatives in the home, as many patients were comatose when received. On admission to the hospital, a detailed physical examination was done and cultures of the blood were made before treatment. Spinal fluid pressures were measured on admission; daily routine spinal fluid examinations included cell counts, chemical tests for sugar and proteins, smears and cultures for organisms. Leukocyte counts of the blood were made on admission and at irregular intervals thereafter. Frequent urinalyses and repeated blood cultures were made, and, when possible, daily physical examinations. At intervals throughout the epidemic, organisms obtained from cultures of the blood and the cerebrospinal fluid were typed by means of agglutination and absorption tests. None of the patients were discharged from the hospital until at least two successive negative nasopharyngeal cultures, taken at four day intervals, were obtained.[2] Necropsies were obtained in sixteen of the ninety-two fatal cases.

EARLY CLINICAL OBSERVATIONS

The most striking information gained from the clinical histories was the nature of the onset of the disease. In the great majority of cases, the onset was sudden and violent. The clinical course was rapidly progressive and was characterized by extreme prostration, the degree of which was out of all proportion to the meningeal signs. Of the entire group, 56.9 per cent presented the textbook picture of the fulminating or hyperacute type.

Table 1 shows the more important early symptoms and physical signs, certain of which deserve further comment.

In 68 per cent of the cases the tongue showed a marked whitish furring over the dorsum, beefy red margins, and prominent bright red papillae, not unlike the strawberry tongue of scarlet fever. A large majority of patients had some degree of respiratory infection as evidenced by pharyngitis, nasal discharge, bronchitis or pneumonia. In the presence of intracranial pressure of from 35 to 52 mm. of mercury, cephalic cry and projectile vomiting were occasionally

TABLE 1.—*Early Symptoms and Physical Signs*

	Number	Per Cent		Number	Per Cent
Headache	77	53.5	Pupillary changes	42	29.1
Pain in neck	20	13.8	Strabismus	45	31.2
Pain in back	16	11.1	Nystagmus	11	7.6
Joint pains	13	9.0	Fixed pupils	49	34.0
Generalized pains	21	14.5	Strawberry tongue	98	68.0
Photophobia	28	19.4	Upper respiratory infection	79	54.8
Vomiting	76	52.7	Cervical adenitis	92	63.9
Chills	30	29.8	Bronchial breathing	25	17.3
Delirium	55	38.2	Râles	30	20.8
Convulsions	19	13.3	Enlarged heart	30	20.8
Coma	70	48.6	Enlarged liver	10	6.9
Opisthotonos	52	36.1	Petechiae	99	68.7
Retraction of head	71	49.3	Constipation	30	20.8
Neck rigidity	127	88.2	Abdominal distention	26	18.0
Bilateral Kernig	112	77.7	Urinary retention	36	25.0
Unilateral Kernig	8	5.5	Urinary incontinence	12	8.3
Bilateral Brudzinski	74	51.4	Herpes	20	13.8
Unilateral Brudzinski	16	11.1	Cephalic cry	5	3.4

seen, while coma, stupor or delirium were usually present, although these conditions existed at times when the pressure was not markedly elevated. Obtunded ocular, cutaneous and tendon reflexes, not included in table 1, were present in a large majority of cases.

Cutaneous hemorrhages were observed in ninety-nine patients,[3] or 68.7 per cent. There was considerable variation in the appearance of the lesions, and three subdivisions were made: In the first group, comprising twenty-three cases, there were only a few scattered petechiae which usually did not exceed 3 mm. in diameter and which were most often seen over the dorsum of the hands, the knees, the ankles and the feet. In the second group, forty-six cases, the hemorrhages were little, if any, larger but were more numerous, were scattered over the trunk, and were especially numerous about the neck and face. In the third group, including thirty cases, are listed those in which there were innumerable hemorrhages, varying in size from minute pin-point petechiae, 1 to 2 mm. in diameter, up to great purpuric [4] blotches several inches in diameter, appearing over the entire cutaneous surface of the body and always in the conjunctivae. The purpuric blotches were most commonly seen on the upper part of the trunk, the neck, the upper arms and the thighs.

* From the Lilly Laboratories for Clinical Research, Indianapolis City Hospital.

1. Flexner, Simon: Results of the Serum Treatment in Thirteen Hundred Cases of Epidemic Meningitis, J. Exper. Med. **17**: 553-576 (May) 1913.

2. Flexner, Simon: Mode of Infection, Means of Prevention, and Specific Treatment of Meningitis, J. A. M. A. **69**: 721 (Sept. 1) 1917.

3. Borovsky, M. P.: A Clinical Study of Meningococcic Meningitis, Am. J. M. Sc. **179**: 82 (Jan.) 1930.

4. Netter, A., and Salanier, M.: Meningococcus in Purpuric Elements of Meningococcal Infection, Brit. J. Child. Dis. **14**: 101 (April-June) 1917.

Cutaneous hemorrhages usually appeared on the first or second day of the disease. Recurrence of petechiae was noted in two cases.

CLINICAL COURSE AND COMPLICATIONS

The outstanding clinical features observed in the study of this series of cases, apart from the central nervous system involvement, were the extreme virulence of the organism, the very marked evidence of systemic infection [5] or intoxication, and the death of patients despite the rapid improvement in the spinal fluid. Systemic manifestations of the disease were numerous and severe; fever, anorexia and prostration were present frequently for hours or even days before meningeal signs or symptoms developed. The presence of cardiac involvement and pulmonary, upper respiratory and kidney complications (table 2) would seem to indicate either an overwhelming toxic process or a severe generalized septicemia. The high incidence of petechial hemorrhages and the large number of positive blood cultures [6] would strongly indicate the latter.

The interval between the onset of the disease and admission to the hospital varied considerably. In the earliest cases that we saw, the patients were admitted two or three hours after the onset of illness; however, these instances were rare. A large number had been ill two or three days before admission, and a few patients were received after a week or more of illness. Fully 40 per cent of the patients were moribund when they were admitted to the hospital, partly because of the virulence of the disease and partly because of failure to recognize the disease.

The illness was frequently ushered in with a chill followed by a sharp rise in temperature to 103 or 104 F. Subsequently the temperatures were very irregular,[7] the daily peak coming sometimes in the morning, at other times in the afternoon or during the night. Usually at some time during the twenty-four hour period there was a decline in temperature to normal or nearly normal. In many patients who recovered, the temperature repeatedly reached alarming levels (106 F. or higher) and terminal temperatures of from 107 to 110 were not at all uncommon in fatal cases. Many times the temperature remained high after the patient had improved markedly. Defervescence was always by gradual lysis. Subnormal temperature was occasionally noted on admission but was never persistent.

The heart was frequently enlarged before other evidences of cardiovascular involvement developed. At the onset, the pulse was usually accelerated in proportion to the temperature, but during the subacute and convalescent states of the disease the pulse was frequently accelerated out of all proportion to the temperature.

Early involvement of the lymphatics was seen in practically every case, the adenitis being generalized but most marked in the posterior cervical nodes. The enlarged glands were usually rather soft and not infrequently tender to palpation. Adenitis usually persisted for some time after recovery.

In the early days of the disease, irritability and hypersensitivity were present to a high degree. Children especially resented handling. Light stimulation of the skin or moderate pressure over the long bones usually caused an outcry in either children or adults. Meningeal signs showed wide variation in children from those in adults. In the infant, neck rigidity was in general less marked, and frequently opisthotonos was not detected until the child was placed on his side. Kernig's and Brudzinski's signs were frequently absent in young children. In older children and adults, however, neck rigidity was striking. The children from 4 to 12 years of age showed the most extreme degree of opisthotonos; although present in adults, it was usually less marked. Kernig's and Brudzinski's (leg) signs were more frequently and more easily elicited in adults.

Almost complete loss of appetite and profound asthenia were present in most cases. In the acute stage, loss of weight was extremely rapid, and in all protracted cases the patients were greatly emaciated. Patients who were comatose, of course, took food and fluids only by forced feeding. In spite of these facts, intercurrent infections were seen in only three instances.

Relapses occurred but were uncommon; recrudescences, on the other hand, were quite common, occurring in perhaps more than half of the ordinary type of case, and frequently necessitating resumption of serum therapy when this had been discontinued. In refractory cases, it was common to see patients become mentally dull, develop carphologia, subsultus tendinum, muttering delirium, marked tremors, and pathologic reflexes. At necropsy, two of these patients were found to have definite areas of brain softening or actual abscess formation.

Thirty-six cases were complicated by nephritis and four of these by hemorrhagic nephritis; some, but not all of these, had retention of nitrogenous products. Those cases showing albuminuria alone were not included in this group. Recovery occurred in three of the four cases complicated by hemorrhagic nephritis.

A few of the cases complicated by pneumonia presented the physical signs of the lobar type, but in those coming to autopsy only the bronchial or confluent bronchial variety was seen. Pneumonia was frequently, but not invariably, a fatal complication.

Pericarditis, in this series of cases, was a highly fatal complication, recovery occurring in only one of nine unmistakable cases. Endocarditis, however, seen in eight cases, was accompanied by a considerably lower mortality rate.

Arthropathies occurred in eleven, or 7.6 per cent of the cases. Both arthritis and periarthritis were seen, the former most frequently involving the small joints of the hands and feet, and in one of five cases accompanied by suppuration; the latter, nonsuppurative occurred in six cases, most frequently involving the knees.

Deafness occurred in eleven patients and was bilateral in two of these. Deafness in no case has disappeared entirely, and in most instances has not improved. Spinal accessory paralysis, giving rise to wry-neck, was seen particularly in the later and milder cases. Paralysis of both lower extremities was seen in one patient and finally cleared up entirely. Hemiplegia was present in two patients who recovered, having disappeared in one case with but slight residuum, and persisted in the second case, a later one. Spastic paralysis of the upper pharyngeal muscles occurred in three cases, all of which were fatal. Other cranial nerve palsies were usually transitory.

5. Haden, R. L.: Meningococcic Meningitis at Camp Lee, Arch. Int. Med. **24**: 514-519 (Nov.) 1919.
6. Herrick, W. W.: Early Diagnosis and Intravenous Serum Treatment of Epidemic Cerebrospinal Meningitis, J. A. M. A. **71**: 612-617 (Aug. 24) 1918.
7. Dubois, P. L., and Neal, J. B.: Summary of Four Years of Clinical and Bacteriologic Experience with Meningitis in New York City, Am. J. Dis. Child. **9**: 1-16 (Jan.) 1915.

Spinal subarachnoid block [8] occurred in a number of cases. Ventricular block was recorded in six cases but probably occurred more frequently since not all patients who had one or more "dry cisternal taps" were so designated; the condition was seen at the autopsy table when it had not been recognized clinically. To date, no patient with ventricular obstruction in this series has recovered. Intraventricular hemorrhage, diagnosed at necropsy, and in all cases attended by terminal extreme hyperpyrexia (107 to 110 F.), was also seen.

Table 2 shows the more important complications observed and the frequency and time of their occurrence.

TABLE 2.—*Important Complications, Showing Frequency and Time of Occurrence*

Week of Disease	1st	2d	3d	4th	5th	After 5th	Cases: Number	Cases: Per Cent
Hemiplegia	..	1	..	1	..	..	2	1.4
Monoplegia	..	..	..	..	1	..	1	0.7
Paraplegia	1	..	..	..	2	..	3	2.1
Deafness	5	3	..	2	1	..	..	7.6
Oculomotor palsy	23	6	..	2	..	1	32	22.2
Glossopharyngeal palsy	2	..	..	..	1	..	3	2.1
Hypoglossal palsy	3	..	1	1	..	..	5	3.4
Abducens palsy	10	5	4	1	..	3	23	15.9
Trochlear palsy	2	1	1	1	..	1	6	4.1
Facial palsy	10	6	2	3	1	..	22	15.2
Spinal accessory palsy	8	4	..	3	1	..	16	11.1
Ventricular block	5	..	1	..	..	..	6	4.1
Brain abscess	1	..	..	..	2	..	3	2.1
Brain hemorrhage	2	1	..	..	..	..	3	2.1
Encephalitis	2	2	2	1	2	1	10	6.9
Hydrocephalus	1	2	3	..	..	..	6	4.1
Pericarditis	4	2	1	1	1	..	9	6.2
Myocarditis	41	12	1	3	1	..	58	40.3
Endocarditis	5	1	2	..	..	..	8	5.5
Pneumonia	28	5	..	..	..	1	34	23.6
Nephritis	31	6	3	3	..	..	43	29.8
Hemorrhagic nephritis	2	2	..	..	..	..	4	2.7
Arthritis	2	3	..	..	..	..	5	3.4
Periarthritis	3	3	..	..	..	..	6	4.1
Otitis media	1	..	1	..	..	..	2	1.4
Conjunctivitis	8	2	1	..	..	1	12	8.3
Panophthalmitis	6	3	..	..	..	..	9	6.2
Abscesses	1	2	2	3	1	1	10	6.9
Anaphylaxis	12	2	1	..	..	..	15	10.4
Serum sickness	3	11	6	1	..	..	21	14.6

Palpitation, dyspnea and other evidence of myocarditis have been observed for weeks following recovery; strength and weight in some cases were very slow in returning. The mental condition, while quite sluggish in a few patients, has frequently shown improvement. All recovered patients who had sphincteric incontinence have regained control of the sphincters.

Serum sickness was frequently seen, most often appearing in the second week after treatments were started. In six instances in which prolonged use of serum was requisite, serum sickness occurred twice, and a seventh patient had three attacks of this ailment. When not attended by urticaria, this condition may be differentiated from a recrudescence by neurologic examination of the patient and examination of the cerebrospinal fluid. In the presence of serum sickness, when clinical and bacteriologic examination indicated active infection, the serum treatment was continued without apparent ill effects.

LABORATORY OBSERVATIONS

White blood cell counts on admission fell between the extremes of 4,000 and 64,000, the majority of patients having a leukocytosis of from 15,000 to 25,000. Those cases with very low and those with very high counts were almost invariably fatal. Differential leukocyte counts showed a polymorphonuclear percentage of from 80 to 98. Those cases with a very high percentage of polymorphonuclear cells were fatal. The red blood cell count was usually unaltered.

Spinal fluid pressures, while in general greatly elevated, showed wide variation. The mercury manometer was used, and pressures recorded ranged between zero and 52 mm. When the pressure was subnormal, the fluid was either too thick and turbid to flow from the needle or subarachnoid block was present. Spinal fluid cell counts made on admission varied from zero to 109,000.

It was found that a clear cerebrospinal fluid, without leukocytosis (by the usual methods of counting) does not rule out the diagnosis of meningococcic infection. In six cases in which the number of cells was not elevated, the clinical diagnosis was substantiated only by cultures of the blood or spinal fluid or both. All these showed a leukocytosis of the spinal fluid after serum had been administered intrathecally.

Very few of the spinal fluids obtained from first puncture reduced Benedict's solution, but when the active infection had subsided the tests became positive. In several instances, when the spinal fluid sugar was repeatedly negative over a period of several days, blood sugar determinations were normal.

We have used the Pandy test for spinal fluid proteins. All variations of positive reactions were seen. Persistently strong reaction was usually a bad prognostic sign. When the spinal fluid cell count reaches 400 or below, the sugar reaction is positive, and the Pandy test shows decreasing amounts of proteins, it is advisable to discontinue intrathecal administration of serum.

Direct smears and cultures [9] were made from all cerebrospinal fluids when the patients were admitted. It was found that when no organisms were seen in stained smears of centrifugated cerebrospinal fluid the bacteria could rarely be grown. On the other hand, cultures were frequently negative in fluids from which meningococci had been obtained in direct smears. Only rarely, and then most often during a recrudescence, could the organisms be obtained in culture after serum had been administered intrathecally, and even when seen in direct smear the appearance of the organism was considerably altered. Spontaneous coagulation of cerebrospinal fluid (the syndrome of Froin) was seen in a few instances and was usually a bad prognostic sign. At some time in almost every case the cerebrospinal fluid became xanthochromic, but little importance could be attached to this occurrence.

Cultures of the blood were made on admission and at intervals thereafter, blood enriched agar plates and semisolid testicular agar (tubes) being the mediums used (p_H 7.6). We have obtained positive cultures of the blood repeatedly from the same patients, in one instance as late as the nineteenth day, and in another as late as the thirty-fifth day of the disease.

Repeated examinations of blood and cerebrospinal fluid [10] from convalescent patients have failed to show the presence of agglutinins for the causative strain of organism. In one instance only were agglutinins found, and then in the blood of a patient who had been treated with antimeningococcic serum plus a vaccine to which had been added convalescent serum.

At intervals throughout the four months' period, cultures selected at random were typed by means of

8. Mitchell, A. G., and Reilly, J. J.: The Introduction of Antimeningococcic Serum by Cistern Puncture, Am. J. M. Sc. **164:** 66 (July) 1922.

9. The bacteriologic and serologic studies were made by H. M. Powell, A.B., Sc.D., and F. G. Jones, of the biologic department of the Lilly Research Laboratories.

10. Taylor, F. E.: The Antibody Content of the Cerebrospinal Fluid in Meningococcal Infections, Lancet **1:** 418 (March 17) 1917.

agglutination and absorption tests. This work was done according to the classification and technic suggested by Gordon.[11] All cultures so treated were found to be type III, comparatively rare according to Blackfan.[12] It is true that we have not typed organisms from each patient, but, since the cultures were selected at random and throughout the entire four months, it is fair to presume that other cases were likewise caused by a type III organism.[13]

TREATMENT

The treatment has remained essentially the same throughout the epidemic. The routine adopted included, on admission, a skin sensitization test, rhachicentesis and intrathecal serum, intramuscular serum and (especially during the second month of the epidemic) serum intravenously. Intravenous administration of an antiseptic solution was tried and found wanting despite the in vitro activity of the agent.

Commercial serums were used throughout, except a small lot from a state health board from which no conclusions relative to efficiency could be drawn. The agglutinating powers of all serums used were determined and found to be adequate.[14] Furthermore, neutralization tests on animals according to the method of Shwartzman[15] were used to determine the efficacy of the various serums.

As to the efficiency of the three brands of serum used, there appeared to be little difference. We favor, for intrathecal use, however, a concentrated serum for the reason that it is less bulky and the entire quantity may be given even to the small child. In view of the septicemic nature of the disease, as Herrick, Blackfan and others have pointed out, and as we have found, and in view of the high incidence of petechiae and positive blood cultures, it would seem that intravenous serum is indicated, and results bear out these opinions. However, we have unfortunately found that one of the commercial serums used intravenously is attended by extremely dangerous reactions and that alarming reactions were experienced, although less frequently, with the other serums used. These reactions took place despite negative skin or conjunctival sac sensitization tests in some instances. The idea is quite prevalent that, in the administration of serum intravenously, if 3 or 4 cc. can be given slowly with safety, the patient will not have an immediate anaphylactic reaction. We have found that this is not wholly true, as reactions of alarming proportions have occurred after administration of 30 cc. of serum. In some instances there appeared to be a daily decreasing tolerance to repeated intravenous serotherapy, necessitating abandonment.

Both lumbar and cisternal punctures were used as a routine. In numerous patients, spinal subarachnoid block necessitated cisternal puncture. Serum was used intracisternally also in refractory cases not responding well to intraspinal treatment. The usual gravity method for intrathecal administration of serum was employed with the least possible pressure,[16] the volume administered being at least 5 or 10 cc. less than the amount of fluid removed. Neal and Dubois and others have described a condition of "shock" following intrathecal administration of serum, characterized by cessation of respiration while the heart continues to beat. This phenomenon was not infrequently seen in our cases and has resulted fatally in a few instances.[17] This condition has been ascribed to sudden elevation of intracranial pressure by the serum, but it is suggested that a sudden decrease may also be the cause.

Reinjection, intramuscularly, of spinal fluid, proposed by Lauzer,[18] was employed as an adjunct to serotherapy in a number of cases without well marked evidence of beneficial effect.

Following the idea advanced by Caronia[19] for the treatment of typhoid, a lysed vaccine, to which had been added convalescent serum, was administered subcutaneously to twenty-nine patients. Some of the group received this material on admission and throughout the period of active infection, and others only when serum therapy had failed and death was imminent. In every instance it was used only as an adjunct to serum therapy. The procedure was instituted at a time when cases were becoming less virulent, and the series of patients thus treated is so small that the results have not been convincing. Additional work along this line seems to be justified.

Flexner and others have reported the high incidence of positive nasopharyngeal cultures, and it was deemed advisable to attempt to combat this source of infection. The first antiseptic solution employed was discontinued when nasopharyngeal cultures were positive after several days of intranasal administration. The procedure finally adopted was: ephedrine sulphate, 3 per cent, in each nostril followed by sodium-ethylmercuri-thiosalicylate (Merthiolate) 1:4,000 twice daily. Following the institution of this therapy no nasopharyngeal cultures were positive. Further than the foregoing, the treatment was symptomatic.

MORTALITY

Table 3 shows the distribution of cases by age and race with the mortality for each.

TABLE 3.—*Distribution of Cases by Age and Race, with Mortality for Each*

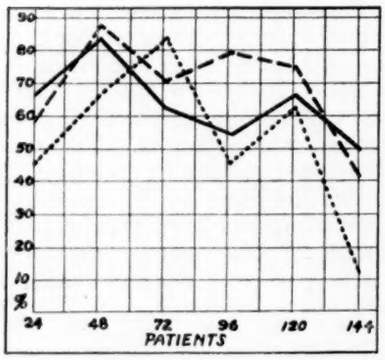
Age in Years	0 to 1	1 to 5	5 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	Over 60	Total	Per Cent
Number of cases....	5	31	26	25	25	18	8	3	3	144	....
White.....	3	19	16	16	15	13	4	1	1	88	....
Died.....	3	12	6	8	12	11	3	1	1	57	64.7
Recovered.....	..	7	10	8	3	2	1	..	..	31	35.3
Negro.....	2	12	10	9	10	5	4	2	2	56	....
Died.....	1	5	7	4	8	3	3	2	2	35	62.5
Recovered.....	1	7	3	5	2	2	1	..	..	21	37.5
Per cent of mortality by age.....	80	54.8	50	48	80	77.7	75	100	100		

Three patients died before treatment could be administered. Thirty-five others died within twenty-four hours after admission to the hospital and received only one serum treatment. Of the ninety-two fatal cases, only twenty-five were in the hospital more than seventy-two hours. In the remaining sixty-seven cases (those who died in seventy-two hours or less after admission) the sudden onset, rapidly progressive clinical course and early fatal outcome would obviously require the designation of fulminating or hyperacute. Indeed, the number of fatal cases by no

11. Gordon, M. H.: Identification of the Meningococcus, J. Hyg. **17**: 290-315 (July) 1918.
12. Blackfan, K. D.: The Treatment of Meningococcic Meningitis, Medicine **1**: 139-212 (March) 1922.
13. Kennedy, A. M., and Worster-Drought, C. C.: The Relation of the Type of Coccus to the Type of Disease in Meningococcal Meningitis, Brit. M. J. **1**: 261-262 (Feb. 24) 1917.
14. Amoss, H. L.: Notes on the Standardization and Administration of Antimeningococcic Serum, J. A. M. A. **69**: 1137-1140 (Oct. 6) 1917.
15. Shwartzman, Gregory: Therapeutic Antimeningococcic Serums, J. A. M. A. **93**: 1965-1969 (Dec. 21) 1929.
16. Koplik, Henry: The Serum Treatment and the Prognosis Under Various Forms of Therapy in Cerebrospinal Fever, M. Rec. **74**: 557-560 (Oct. 3) 1908.
17. Flexner, Simon: Accidents Following the Subdural Injection of the Antimeningitis Serum, J. A. M. A. **60**: 1937-1940 (June 21) 1913.
18. Lauzer, E. S. (Rock Springs, Wyo.): Personal communication to the authors.
19. Caronia, Joseph: The Nature and Use of Lysed Typhoid Vaccines, Am. J. Dis. Child. **39**: 1-8 (Jan.) 1930.

means includes the entire number of patients critically ill on admission; many others were stuporous, delirious or comatose, suffering from hyperpyrexia, from numerous severe complications, as pneumonia, pericarditis and nephritis, or were otherwise violently ill and recovered. These statements are made not only in order to emphasize the severity of the illness but also to distinguish between the clinical picture of true epidemic meningococcic infections and the milder, far less alarming sporadic cases.

Since the treatment has not varied appreciably during this epidemic, a review of the mortality statistics should give accurate information on the trend of the epidemic regardless of therapeutic agents in use. There was in the beginning a sharp rise in mortality rate to a peak and then a gradual decline which corresponded fairly well to the evidences of septicemia and severity of the cases. This would naturally be confusing if the treatment at the time of the peak [20] had been abruptly changed, that is, from one brand of serum to another.[21] We therefore believe that clinically the comparative evaluation of various brands of serum or other therapeutic agents can be accurately determined only by alternate clinical controls throughout an entire epidemic.



Variation in incidence of petechiae, positive blood cultures, and mortality by groups of twenty-four cases in chronological order of admission: Solid line, mortality (63.8 per cent); broken line, petechiae (68.7 per cent); line of short dashes, positive blood cultures (63.8 per cent).

The apparent parallelism between the incidence of petechiae, the percentage of positive blood cultures and the mortality rate is quite striking. Twenty-five patients either died before cultures of the blood were made, or the only cultures made were contaminated. Of the remaining 119 cases, 63.8 per cent showed positive blood cultures, as shown in the accompanying chart. In a few of the charts no mention was made of petechiae, but the statistics are quoted for the entire group. The data on mortality includes all cases, fulminating and otherwise.

When the fulminating or hyperacute cases are excluded (patients who were in the hospital less than seventy-two hours and received not to exceed three days' treatment) the mortality statistics are quite different. Sixty-seven deaths occurred within seventy-two hours of admission. Of the remaining seventy-seven patients, twenty-five died, the mortality being 32.4 per cent.

SUMMARY

A series of 144 cases of epidemic meningococcic meningitis (type III) has been studied, with the following observations:

1. In the fulminating type of cases, intrathecal administration of serum appears to be inadequate, regardless of rapid improvement in the condition of the spinal fluid.

2. Evidences of systemic infection would seem to be an indication for the intravenous administration of serum.

3. Dangerous anaphylatic reactions may follow the first or subsequent daily intravenous injections of antimeningococcic serum.

4. Of 119 patients from whom blood cultures were made, seventy-six (63.8 per cent) were positive for meningococci.

5. There was an approximate parallelism between the incidence of petechiae, the percentage of positive blood cultures, and the mortality rate throughout the epidemic.

6. A serum the agglutination titer of which is adequate (Amoss) is not to be condemned on the basis of fatalities at the peak of an epidemic or to be overrated on the basis of results obtained when the virulence of the epidemic is on the wane.

20. Wright, I. S.; DeSanctis, A. G., and Sheplar, Adele: The Determination of the Value of Serum in the Treatment of Meningococcic Meningitis, Am. J. Dis. Child. **38**: 730-740 (Oct.) 1929.

21. Anderson, J. M.: The Lack of Therapeutic Value of Antimeningococcic Serum, J. A. M. A. **93**: 1613 (Nov. 23) 1929.

AGRANULOCYTOSIS

REPORT OF A CASE *

STEWART R. ROBERTS, M.D.
AND
ROY R. KRACKE, M.D.
ATLANTA, GA.

The red marrow of the bones makes erythrocytes, granular leukocytes and platelets. In agranulocytosis, the factory that makes the granulocytes has shut down. The life of this cell in the normal conditions of health is three days or more,[1] and from three to five days by other evidences. Therefore should the red marrow stop manufacturing them for three, four or five days, they would after that time totally disappear from the blood stream. This is apparently what happens. In our patient there is evidence that it did happen. The factory divisions of the marrow that make the erythrocytes and the platelets seem to continue to work at approximately their normal output. There is little if any evidence that the granulocytes are formed normally in the marrow and destroyed in the blood stream. On the contrary, there is much evidence that the myelocytic function of the marrow stops and that the primary pathologic condition is in the bone marrow.

The cause of this pathologic condition is unknown. This whole question is theoretical. The evidence that the primary seat of the condition is in the marrow is threefold:

1. At necropsy, normoblasts and megakaryocytes are present but myelocytes and granulocytes are absent or nearly absent. The marrow is often liquid and varies from red to straw color. In other cases, particularly with the maintenance of the gross fatty structure, myelocytes may be completely absent or nearly so, but the erythrocytes, the lymphocytes and the monocytes are present. The latter two cells may be apparently actually increased. The aplasia of the marrow involves the granulocytes. If death occurs after regeneration of the granular cells has begun, the marrow may show evidence of acute hematopoiesis with cells normal in number and character and even myeloid hyperplasia. Buck's [2] case illustrates this point. Areas of patchy necrosis may occur in the marrow. Patients who recover from the

* From the Emory University Hospital.

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

1. Sabin, F. R.: Bone Marrow, Physiol. Rev. **8**: 191-244 (April) 1928.

2. Buck, R. W.: Agranulocytosis Associated With Anal Ulcer, J. A. M. A. **93**: 1468 (Nov. 9) 1929.

disease evidently possess, so far as their bone-marrow is concerned, the "spontaneous power of reaction of the diseased tissue" (Turk).

2. In three cases the marrow was removed from the sternum during the height of the disease and showed "a cell-poor marrow with decrease in the granulocytic elements, the same as was seen at necropsy. The hypoplasia of these granular cells is thus not a terminal event and the decrease of the cells in the blood stream appears to be due to failure of development of the cells in the bone marrow."[3] Buck found myelocytes and myeloblasts in the marrow, but two days before the sternal marrow puncture was done the polymorphonuclears were 10 per cent, and one day after they were 4 per cent, showing that at the time of the puncture the regeneration of the granulocytes was under way or that they had never completely disappeared from the blood stream. Agranulocytosis does not postulate the complete disappearance of the granulocytes either from the marrow or from the blood stream.

3. Our own case shows complete disappearance of the granulocytes from the blood stream two days before the clinical onset and their reduction to only 10 per cent four days before the clinical onset. The marrow before the clinical onset had ceased the manufacture of the granulocytes. The marrow evidently passes through a period of dysfunction to complete afunction in a case presenting total absence of the polymorphonuclears. But the primary lesion, the primary dysfunction, the primary afunction is in the myelocytic division of the marrow even before the clinical onset. The disease exists in the bone marrow before it appears in the blood stream and in the blood stream before it appears clinically.

The disease has, therefore, three onsets: a marrow onset, a blood stream onset and a clinical onset. In our case on May 18 came the first gross drop in the polymorphonuclears in the blood stream in the second attack. This was the blood stream onset. The marrow onset evidently came from three to five days previously when the marrow stopped manufacture. The clinical onset came, May 21, four days after the blood stream onset and six or eight days after the marrow onset. Counting the life of the leukocyte at four days, it would seem that, measured by the events of the second attack, the period of collapse occurred eight days after the marrow had ceased to deliver the finished products to the blood stream, and four days after they had begun to disappear from the blood stream.

But the main question is this: Is there a separate disease in which there is first of all an unaccountable physiologic paralysis of the bone marrow that stops quickly and completely, or nearly completely, the manufacture of the polymorphonuclear leukocytes? Blumer[4] says: "It is a moot question, on which there is a good deal of disagreement, whether the bone marrow condition precedes the local infection or follows it. If it is assumed to precede it—and certainly in some cases the patient is ill before the development of local lesions—we are only pushed a step farther back, for we must then account for the condition of the bone marrow."

The case reported here affords evidence, if not proof, that the marrow loses its power to make granulocytes for some days before the development of a sepsis. We felt that this problem could be solved only by observing a patient who could be closely watched from the beginning of the first attack, on whom blood counts must be made daily, and who must later have a second attack, at which time it could be determined with preciseness whether the changes in the blood picture with the absence of the granulocytes preceded or followed the clinical onset and sepsis syndrome. Permission for a necropsy was refused despite much effort. We feel, however, that the failure to obtain a necropsy did not lessen the proof of the main point at issue.

3. Kastlin, G. J.: Agranulocytic Angina, Am. J. M. Sc. **173**: 799 (June) 1927, after Zadak, Schultz and Jacobowitz.
4. Blumer, George: Agranulocytic Blood Picture in Conditions Other Than Angina, Am. J. M. Sc. **179**: 11-16 (Jan.) 1930.

REPORT OF CASE

History.—The patient was a rather frail but active woman, aged 72, who lived in ease and comfort and was, for her age, sprightly and healthy. Fortunately, she had been under the observation of one of us for five and one-half years. She had never had any severe illness and came of a long-lived family of twelve children. In September, 1923, a complete blood count was made and the record obtained. It read as follows: hemoglobin, 65 per cent; red blood cells, 3,400,000; color index, 0.75; white blood cells, 7,400; neutrophils, 46; eosinophils, 1; small lymphocytes, 50; large lymphocytes, 2; monocytes, 1.

Period of Onset.—On the afternoon of Sunday, March 10, 1929, she was in her usual good health and spirits and went for a two hour automobile ride. She returned at 6 o'clock, complained of an unusual weakness and exhaustion, said she wanted no supper, and went at once to bed.

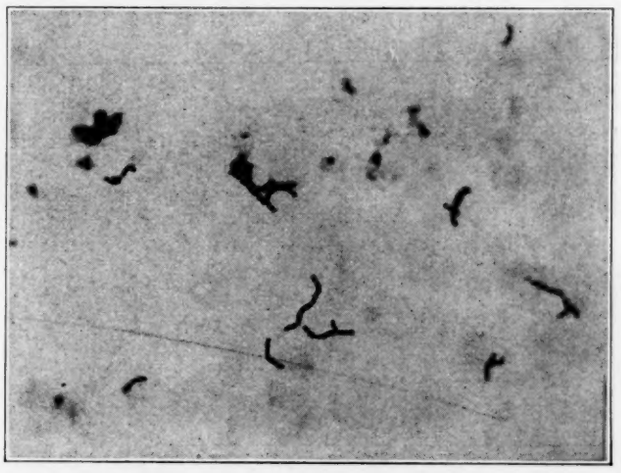


Fig. 1.—Pure culture of Streptococcus hemolyticus isolated from the blood stream during the first attack. The oral, subcutaneous and intravenous inoculation of this organism into guinea-pigs and rabbits failed to disturb the blood picture during an observation period of eight days.

Monday, March 11, she slept most of the day, refused her food, and seemed strangely different from her natural self. By 7 that night she was difficult to arouse, the right tonsil and throat were red. The temperature was 102 F., the pulse 120, the blood pressure 140 systolic and 70 diastolic. Influenza was suspected.

Tuesday, March 12, the patient was stuporous and the right tonsil and pillar were an angry red and edematous. Agranulocytosis was suspected and a blood count was done at 10 a. m. Hemoglobin was 70 per cent; red blood cells, 3,640,000; white blood cells, 2,050; polymorphonuclears, 0; lymphocytes, 100. While preparations were being made to move her to the Emory University Hospital, she awoke from her stupor, gestured to one of us to approach the bed and said, "I have been sicker today than I have ever been in my life." As she was leaving her home she asked for her son's muffler, her only request and only memory from March 10 to March 22. On the latter date she awoke, saw two nurses in the room, and thought they were angels. After this she was normal mentally. This is the first evidence of the psychic state in the disease that we have observed. It is well to note this quick collapse and loss of memory and to compare her condition with the clinical onset of the second attack, May 22, seventy-two days later.

From March 12 until the night of Friday, March 15, she grew worse. She was delirious and restless, picked at the bed

clothes and was restrained in bed, strangled easily and had involuntary urine and stool. The involvement in the right side of the throat extended to the left side, and a necrotic area appeared on the right tonsil and on the anterior right border of the tongue. It is well to note the identity in location of the necrotic areas with those of the second attack. The anterior cervical and the submaxillary nodes were greatly swollen, the neck and face were edematous, the eyes were closed, and the lids were bluish and edematous. She muttered complaints of pain in the right jaw, right ear and left forearm. The right ear drum became very red. On Friday the anterior left forearm was red, swollen and tender. She complained of pain in the middle part of the calf of the left leg. Multiple firm, elevated, purple, embolic areas appeared on the skin of the abdomen, thighs, legs and even the soles of the feet. The temperature ranged from 101 to 104.6 F.; the pulse from 120 to 140; respiration from 25 to 40. She was very ill.

March 13, the leukocytes were 2,150 with only 12 white blood cells on the entire smear, polymorphonuclears 1, and lymphocytes 11. March 14, the leukocytes were 4,250 with one immature neutrophil and two eosinophils. Of 83 leukocytes on the smear, 3 were polymorphonuclears and 80 were lymphocytes. March 15, a blood culture was positive for *Streptococcus hemolyticus;* the blood was type 2. The leukocytes were 5,075, with 1 mature and 5 immature neutrophils, the others lymphocytes and monocytes. The laboratory reported that, summing up the

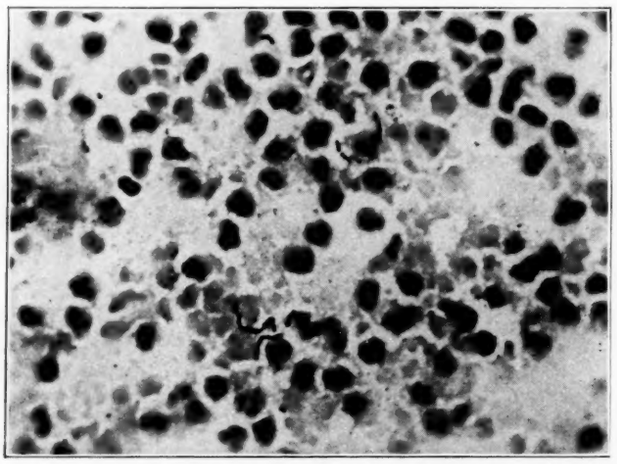


Fig. 2.—Streptococcus hemolyticus in the exudate of an incised embolic abscess. It has the same morphologic and cultural characteristics as that isolated from the blood stream.

blood picture, it seemed that granular cell regeneration was beginning.

March 17, the patient was rapidly improving. This was two days after the granulocytes began to appear in the blood stream and five days after granulocytic regeneration had begun in the marrow. The neutrophils were slipping into the blood stream in increasing numbers. It seems that even a few granulocytes in the blood stream may greatly improve the patient. The redness and the edema of the throat rapidly disappeared. The necrotic mass on the tongue sloughed off. The swelling of the face and neck lessened, the abdominal distention decreased and the patient appeared more natural. A diuresis suddenly succeeded a near suppression of urine, and this was followed by a few days of diarrhea with mucus and pus in the stool, due, presumably, to a necrosis and ulceration in the intestinal mucosa. The temperature ranged from 99 to 100.8 F.; the pulse was from 100 to 110; the respiration was 25; leukocytes numbered 5,950; polymorphonuclears, 32; lymphocytes, 68.

The patient was getting better. Nearly one third of the leukocytes were now polymorphonuclears and yet the embolic abscesses were scattered through the skin, the left forearm was swollen and angry red with an intense cellulitis, and deep abscesses were evidently developing in the muscles. The left leg was tender, and deep in the calf was a mass evidently an abscess. *Streptococcus hemolyticus* had already been found in the blood and cultures were now made from the throat, skin abscess, sputum, urine and stool. The picture by contrast was becoming clear. The patient had collapsed and appeared near death when the granulocytes were absent from the blood stream. She was now evidently secondarily septic with a bacteremia with superficial and deep abscesses, but the polymorphonuclears were increasing in the blood stream and she was improving rapidly. The condition suggested to us that the agranulocytosis was the primary offending factor. As the granulocytes appeared the patient improved, though sepsis developed with extreme rapidity and distribution.

Period of Sepsis.—There is, of course, some overlapping of the second and third periods. By Monday, March 18, the bone marrow was evidently hard at work. In twenty-four hours the leukocytes increased from 5,950 with a polymorphonuclear percentage of 32 to 21,700 with a count of polymorphonuclears, 37; myelocytes, 28; lymphocytes, 35. This count reached 40,950 with 80 per cent polymorphonuclears, March 20, ten days after the onset of the illness.

Dr. Will Roberts, the attending surgeon, opened the fluctuating abscesses on the forearm, March 24, and reported that the entire anterior surface of the forearm was red and swollen. There were fluctuating areas of pus on the upper and lower thirds due to the accumulation and escape of pus from below the deep fascia in the bellies of the flexor muscle. A small incision over each swelling brought forth much thin, drab-like pus.

Culture showed a *Streptococcus hemolyticus* infection.

The embolic abscesses in the skin rapidly disappeared. The forearm continued to drain freely and then healed rapidly, leaving much contraction and atrophy of the muscles with stiffness of the wrist and fingers. By April 11 the incisions had healed. A leukocytosis due to the abscesses lasted from March 18 to April 4, inclusive. The highest polymorphonuclear count was 85 per cent, March 28, though the total leukocytic count was only 9,300. From March 18 to March 27, inclusive, the count ranged from a low of 16,550, March 23, to a high of 40,950, March 26.

April 19, the abscess in the left leg was opened and drained 60 cc. of thin, drab pus. From this there grew a pure culture of *Streptococcus hemolyticus.* The count, April 19, made after the abscess was opened, was 16,050 leukocytes with 66 per cent polymorphonuclears, a jump from the previous day from a count of 9,450 but with 70 per cent polymorphonuclears.

Period of Recovery.—The period of sepsis was over, the leg was healed by April 28, the patient was well but weak, all the bodily functions were normal, and she ate well and gained flesh. The blood count of May 2 showed: red blood cells, 3,600,000; white blood cells, 6,200; hemoglobin, 60 per cent; polymorphonuclears, 33; small lymphocytes, 67. Throughout the illness the hemoglobin and erythrocytes had remained practically unchanged. From May 2 to May 17 inclusive there was a moderate leukopenia with an inversion of the normal polymorphonuclear and lymphocyte percentages, the former averaging 33 and the latter 67. The patient was up and out on the lawn daily, though she remained at the hospital for observation and laboratory data. She appeared even stronger and in better health than before her long illness. We felt that now was the most important time in our clinical observations and blood counts. If the disease was a primary blood dyscrasia and should a second attack come, valuable evidence could be obtained. We were after the first evidence of the second attack. Conditions continued without change until and including May 17, when the leukocyte count was 5,000; polymorphonuclears, 34 per cent; small lymphocytes, 66 per cent.

Period of Second Attack.—May 18, at 10 a. m. the leukocytes showed the first dramatic evidence of the second attack. The count was 3,300 and the polymorphonuclears had dropped to 10 per cent and the small lymphocytes had risen to 90 per cent. Only 50 white cells were found on the smear. There were only 5 polymorphonuclears and the nuclei were either the rod form or two-lobed. In twenty-four hours a drastic change had come in the blood picture and in the blood stream. From three to five days before this, however, a drastic change had come in the bone marrow. The manufacture of the polymorphonuclears had nearly stopped. The drop in the total leukocyte count was chiefly at the expense of these cells. The hemoglobin, the

erythrocytes and the lymphocytes were relatively undisturbed. On the 19th, the count was the same except that the leukocytes had dropped to 2,600. On the 20th, most important of all, the polymorphonuclears were gone from the blood stream; but on these last three days, May 18, 19 and 20, the patient was as well as usual, mentally alert and happy, getting up and out of bed, eating and sleeping well, going on the lawn with her nurse, and on the last day, the 20th, actually dancing a few steps in her room to show us how well she was. We said nothing and looked on in amazement, when we realized that here was a woman in whom the marrow had stopped making granulocytes, in whom the granulocytes were gone from the blood stream, and yet she presented every evidence of health, strength and well being. We were waiting for the clinical storm to break. The clinical onset was all that was lacking to complete the picture of the second attack.

The next morning, the 21st, she was up and dressed and ate breakfast as usual. By 10 o'clock she seemed to wilt before our eyes. She was seated in her chair and complained of great weakness, saying that she could hardly sit up. Her right tonsil and throat were faintly red. The polymorphonuclears had now been absent two days and only 10 had been seen in four days. On the fourth day after they had practically disappeared from the blood, the attack came. Somewhere between the 15th and the 17th, the marrow had stopped making polymorphonuclears. On the 22d the patient was worse, and on the 24th patches of necrosis appeared on the anterior right border of the tongue, on the identical spot involved in the first attack. On the 24th, 25th and 26th, the leukocytes averaged around 400, with polymorphonuclears absent. On the 25th she was unconscious; she died at 10 p. m. on the 26th, after a stupor lasting forty-eight hours. There was evidence of a terminal bronchopneumonia but there was no evidence that this caused her death. She had lived for seven days without a demonstrable polymorphonuclear leukocyte in the blood stream. The blood culture was negative. The temperature, pulse and respiration had the same range as in the first attack. The hemoglobin and erythrocytes were unaffected. There were variations in both throughout the illness, common to any individual and consistent with the personal equations of the technicians.

Laboratory Observations.—These are summarized in the accompanying table showing the daily blood count.

Bacteriologic Data.—On the day of admission, smears and cultures from the sputum showed *Streptococcus hemolyticus* predominating, with staphylococci and various bacilli. The throat smears showed an absence of Vincent's organisms and streptococci of the same type predominated. The blood culture showed hemolytic streptococci and the same organism was isolated from the sputum, throat, mouth ulcers, feces, urine and later from the embolic abscesses. It seems that the agranulocytic condition was followed by widespread invasion of the entire body by this organism.

The organism from the blood stream was inoculated into rabbits and guinea-pigs by the intravenous, subcutaneous and oral routes. It did not produce any disturbance in the blood picture or any symptoms during eight days of counts and observations on these animals. May 28, the final day of the patient's illness, with the blood count 400, an effort was made to determine the presence of a circulating toxic agent that may have been responsible for the destruction of the polymorphonuclears. This was done as follows:

Four cubic centimeters of the patient's blood was oxalated, and 2 cc. at once mixed with 2 cc. of normal blood of the same type. Two cubic centimeters of the latter was mixed with an equal quantity of a second normal blood, this serving as a control. Differential and white counts were then made at two-hour intervals for forty-eight hours, but neutrophilic destruction could not be demonstrated. This would indicate that peripheral destructive agents were not present and lends further support to the contention that the disease is one in which the bone marrow fails to function, because of a pathologic condition of the cells.

TREATMENT

The treatment in general followed the usual lines. In the first attack one transfusion was given with a total of 30 minutes' irradiation over the long bones on different days. An antistreptococcic serum was given and it caused an urticarial reaction. Careful nursing, fresh air, water and food were had in abundance. To no one factor could we attribute her recovery unless it was the quick onset of the sepsis due to *Streptococcus hemolyticus*. This apparently saved her life because it probably awakened the myelocytic activity of the marrow. In the second attack, two transfusions were given.

Daily Blood Counts in Case of Agranulocytosis

Date, 1929	Red Blood Cells	White Blood Cells	Hb.	Differential			Comment
				Neu.	Lym.	Myel.	
Period of First Attack							
3/12	.....	2,000	..	0	100	..	At this time patient
3/12 p.m.	3,640,000	2,050	65	0	100	..	had stupor, fever,
3/13	4,090,000	2,150	60	0	100	..	red throat, edema,
3/14*†	4,330,000	1,300	63	4	96	..	necrosis of throat
3/15	4,920,000	5,075	72	4	45	51	and tongue, and
3/16†	4,720,000	4,250	63	13	26	61	dysphagia
3/17	4,230,000	5,950	55	32	32	36	
3/18	3,840,000	21,700	55	68	17	15	
Period of Sepsis							
3/19	4,760,000	23,300	65	74	19	7	
3/20	4,130,000	40,950	64	84	16		
3/21†	4,340,000	29,400	60	76	24		
3/22	4,450,000	19,250	65	80	20		
3/23	4,950,000	24,000	70	75	25		
3/24†	4,980,000	16,700	70	79	21		Forearm abscess opened
3/25	4,700,000	17,150	60	76	24		
3/26	4,200,000	13,550	65	72	28		
3/27	4,210,000	15,800	70	68	32		
3/28	3,510,000	9,300	65	55	45		Diuresis and diarrhea
3/29	3,080,000	10,950	65	74	26		
3/30	3,960,000	9,250	70	66	34		
4/ 1	3,760,000	12,450	60	68	32		
4/ 2	3,450,000	10,450	60	66	34		
4/ 3	4,190,000	10,350	65	72	28		
4/ 4	3,710,000	10,900	65	72	28		
4/ 5	3,380,000	9,200	60	55	45		
4/ 6	4,140,000	7,150	60	63	37		
4/ 7	3,730,000	9,050	55	40	60		
4/ 8	3,710,000	11,100	65	70	30		
4/ 9	3,900,000	6,950	55	52	48		
4/10	3,960,000	6,150	55	65	35		Convalescent
4/11	4,030,000	10,950	53	68	32		
4/12	3,900,000	8,000	50	60	40		
4/13	No count on this date						
4/14	3,740,000	11,150	55	60	40		
4/15	No count on this date						
4/16	No count on this date						
4/17	3,820,000	9,450	70	70	30		
4/18	3,550,000	14,300	50	72	28		Leg abscess opened
4/19	3,450,000	16,050	60	66	34		
4/20	3,900,000	15,600	65	78	22		
4/21	3,540,000	12,350	50	68	32		
4/22	3,650,000	10,300	60	48	52		
4/23	3,910,000	8,500	60	54	46		
4/24	4,340,000	8,450	50	42	58		
4/25	4,070,000	8,950	50	48	52		
4/26	3,950,000	8,450	50	56	44		
4/27	4,160,000	6,250	50	45	55		
4/28	4,150,000	7,650	50	39	61		
Period of Recovery							
4/29	3,540,000	9,750	55	42	58		
4/30	3,480,000	10,600	50	47	53		
5/ 1	3,560,000	7,950	54	38	62		
5/ 2	3,600,000	6,200	60	33	67		
5/ 3	3,500,000	6,000	60	41	59		
5/ 4	3,500,000	5,200	60	22	78		
5/ 5	3,200,000	5,400	50	24	76		
5/ 6	3,750,000	6,100	50	36	64		
5/ 7	3,200,000	6,200	55	34	66		
5/ 8	3,520,000	4,600	50	43	57		
5/ 9	3,510,000	4,100	50	18	82		
5/10	3,610,000	4,150	55	24	76		
5/11	3,200,000	4,400	55	36	64		
5/12	3,610,000	4,450	56	32	68		
5/13	3,410,000	5,500	55	30	70		
5/14	3,430,000	5,600	60	42	58		
5/15	3,460,000	5,450	52	38	62		
5/16	3,530,000	5,200	55	36	64		
5/17	3,440,000	5,100	55	34	66		
Period of Second Attack							
5/18	3,240,000	3,300	55	10	90		No symptoms
5/19	3,400,000	2,600	55	10	90		No symptoms
5/20	3,200,000	2,800	55	0	100		No symptoms (dancing)
5/21*	3,100,000	3,300	55	0	100		Weakness, collapse, to
5/22	4,500,000	1,600	70	0	100		bed
5/23	4,440,000	1,800	65	0	100		
5/24	4,440,000	1,800	65	0	100		
5/25 a.m.*	3,800,000	400	55	0	100		Stuporous, edema in lips
5/25 p.m.	3,800,000	450	55	0	100		and tongue, ulcer on
5/25 p.m.	3,700,000	440	52	0	100		tongue, dysphagia
5/26 a.m.	3,650,000	400	50	0	100		
5/26 p.m.	3,900,000	450	60	0	100		Terminal bronchopneumonia; death

* Transfusions.
† Roentgen therapy to long bones.
Mononuclear cells included in lymphocyte column.

The collapse was so sudden and complete that there was no response of the marrow. There was no evidence of sepsis in the second attack except the relatively slight involvement of the throat and tongue.

COMMENT

Farley [5] has found records of thirty-nine cases and reported seven additional cases of depression of the bone marrow, leukopenia and decrease in the polymorphonuclears in a state resembling agranulocytosis following the administration of arsphenamine. He uses such phrases as "depressed bone marrow function" and "a weak hemopoietic apparatus" to express the dysfunction of the marrow. In reading his cases, one is reminded of acute aplastic anemia. They are all symptomatic blood dyscrasias varying with the degree of marrow depression and the elements of the marrow involved. But they result from known causes; namely, the chemicals used in the treatment of syphilis, chiefly the arsphenamines.

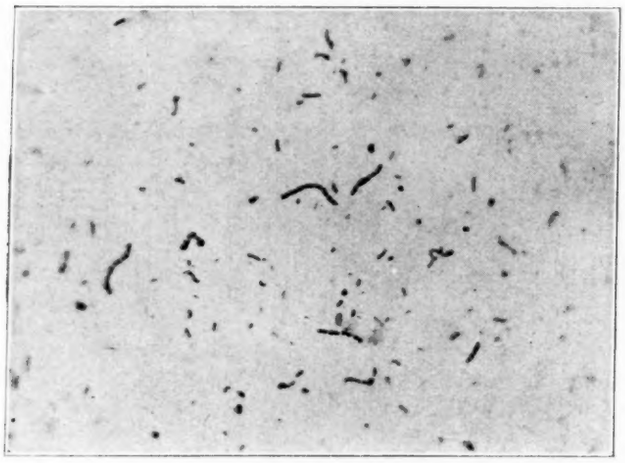


Fig. 3.—The same organism in the stool during the period of diarrhea.

Blumer has written on another and very important phase of the group under the title, "The Agranulocytic Blood Picture in Conditions Other Than Angina." "The purpose of his paper is to point out that local and general sepsis not affecting primarily the skin or mucous membranes may be accompanied by a leukopenia and an agranulocytic blood picture and to discuss the differentiation of these conditions from others which simulate them." He reports a case and quotes similar cases from Schwartz, Turk, Stursburg, and others. In the group that he reports, he is "dealing with individuals whose marrow reacts differently to bacterial infection than does that of most patients." Diagnostic difficulties both clinically and hematologically occur. For example, terminal states in aplastic anemia and acute leukemia may be complicated by terminal infections about the mouth and throat. Clough,[6] discussing agranulocytic angina, makes this wise comment: "A critical survey of the published case reports makes it seem probable that we are dealing with a group of diseases rather than with a single disease." This is evidently true. When Farley, Blumer and Clough wrote, evidence was not at hand that in agranulocytosis the marrow and blood stream changes preceded the clinical onset. Agranulocytosis itself may occur with the mouth and throat normal and the ulceration in the rectum as in Buck's case.

And then to add to the difficulties, Rutledge, Hanson-Pruss and Thayer [7] have recently reported a case of a recurring agranulocytic state in a boy on whom they have more or less complete records since he was an infant. Throughout the discussions, references are made to aplastic anemia, which of course affords an example of a recognized disease of the blood with aplasia of the marrow and a varying decrease in the erythrocytes, polymorphonuclears and platelets. A more acute and selective aplasia with elimination or near elimination of the myelocytic group and activity is apparently present in true agranulocytosis. Certainly this is true, that Farley's analysis of his seven cases is proof that a chemical substance may depress the bone marrow, may cause a blood picture simulating agranulocytosis (except that the blood picture followed the treatment), may decrease the active immunity of the patient, and may permit infection to develop and death to come quickly. Whether certain patients have a constitutional and abnormal functionally limited bone marrow for blood making is as yet a theoretical question. There is at least a physiologic paralysis of the marrow which may show itself in purpura because the platelet production is lessened; in anemia because the erythrocytic production has lessened; or in a marked leukopenia approaching or reaching an agranulocytic state because the polymorphonuclear production has greatly lessened. Marrow response is an important phase.

An effort to mention this "group of diseases" to which Clough refers appears to be in order, with the comment that it is merely an effort. Time and meditation on the cases, and conclusion as the literature is enriched, are needed to permit the group to settle into final conformity with the truth. At present the group seems to include:

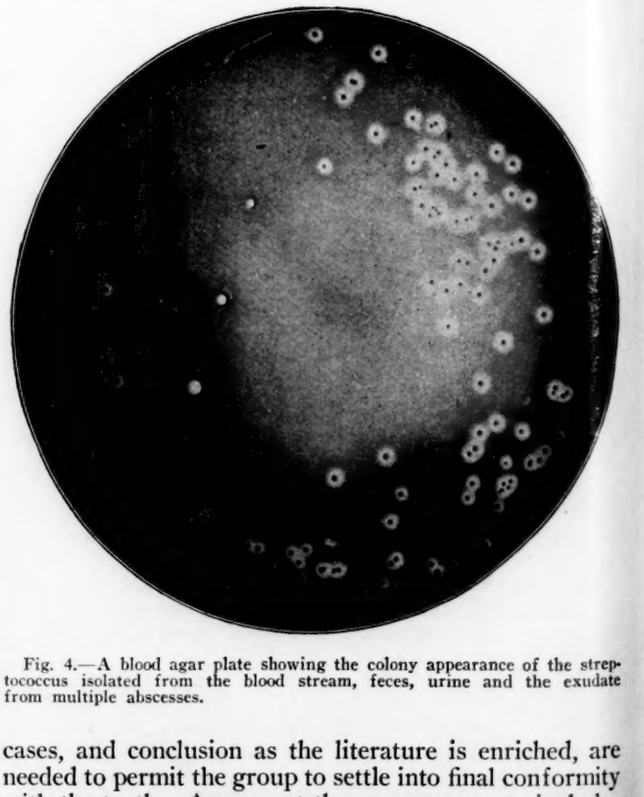


Fig. 4.—A blood agar plate showing the colony appearance of the streptococcus isolated from the blood stream, feces, urine and the exudate from multiple abscesses.

1. Agranulocytic states due to chemical poisons, as benzene or arsenic. Agranulotoxicosis.

5. Farley, D. L.: Depressed Bone Marrow Function From Arsphenamins, Including Type of So-Called Agranulocytosis, Am. J. M. Sc. **179**: 214-227 (Feb.) 1930.

6. Clough, P. W.: Diseases of the Blood, New York, Harper & Brothers, 1929, p. 217.

7. Rutledge, B. H.; Hansen-Pruss, O. C., and Thayer, W. S.: Recurrent Agranulocytosis, Bull. Johns Hopkins Hosp. **46**: 369-389 (June) 1930.

2. Agranulocytic states due to irradiation, as after radium and x-rays. Agranuloradiation.
3. Agranulocytic states due to bacterial infection. Agranulosepsis.
4. Agranulocytosis, a disease entity, in which an unknown cause results in marrow, blood and clinical onsets in the order named. Characterized by single or recurrent acute attacks.
5. Aplastic anemia, with or without acute terminal infection.
6. Pernicious anemia, terminal state.

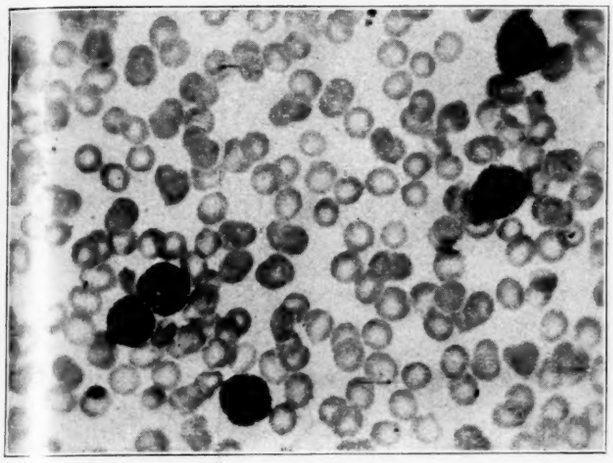


Fig. 5.—A blood smear showing five neutrophilic leukocytes at the height of the granular cell regeneration. At this time the white count was 4,000.

7. Acute aleukemic lymphatic leukemia with or without acute terminal infection.
8. Bizarre anemias and bizarre proportions of the lymphocytes and monocytes.
9. Roseola infantilis.
10. Acute infectious diseases associated with or followed by leukopenia and rarely near agranulocytic states—typhus, typhoid, measles, mumps, malaria, influenza, dengue, phlebotomus fever, Egyptian splenomegaly, and certain pneumonias.

There has been a prudent hesitation on the part of the profession to admit that agranulocytosis is an actual disease entity. The reasons for this prudence are evident. Other conditions and diseases, as illustrated by those just tabulated, closely simulate the blood picture and obscure the clinical syndrome. Besides, many different bacteria have been found in vivo and at necropsy and this multiplicity has not been accounted for. So many patients have been near death and in sepsis when the first blood count was made that it was impossible to tell whether the blood picture preceded or followed the sepsis. No case heretofore has been followed through from the first to a second attack with daily blood counts and clinical observations combined. No true or accepted reason has been given for the pathologic condition in the bone marrow, even if it has been admitted that this condition preceded the systemic sepsis. Any condition that can be caused by so many different bacteria is hardly a disease. No cause has apparently been given for the quick onset, collapse, desperate symptoms, and early death or rare recovery of these patients. There has been no accepted treatment.

The medical mind has certain definite impressions regarding the polymorphonuclear leukocytes, but the subject is not exhausted. Much emphasis has been laid on their embryologic and morphologic aspects, on their staining qualities and on their function of phagocytosis with the ingestion and dissolution of foreign particles by their proteolytic enzymes. In inflammation, their increase in the blood stream and in an inflamed area is considered indicative of resistance. Their failure to appear in certain diseases, as in pneumonia, is considered evidence of lack of normal resistance or of excessive virulence of the bacteria or of both conditions.

It is evident in agranulocytosis that the marrow has ceased to turn out the polymorphonuclears at a normal rate, while the destruction of these cells in the blood stream continues at a normal rate. They quickly disappear or nearly disappear from the blood stream. It is natural, therefore, that the most desperate symptoms should arise from two chief causes: (1) the loss of the powerful, normal, active immunity of the tissues conferred in large measure by the leukocytes of the polymorphonuclear group; and (2) the easy infection that results. There is evidence that the lack of the polymorphonuclears may of itself cause such symptoms as fever, weakness and mental and physical collapse, and admit quickly into the tissues one or more of the ever present bacterial flora whose natural habitat is the mucosa of the digestive tract. The bacteria are probably no more virulent or active than usual, but they enter because the immunity of the tissues is rapidly waning. This apparently accounts for the variety of bacteria that have been reported from culture.

The sources of immunity are many. The polymorphonuclear leukocytes are certainly one of the chief sources. We know that advanced secondary anemia following hemorrhage with a violent drop in the erythrocytes may cause fever, weakness and unconsciousness and admit early infection. The loss of the polymorphonuclears similarly causes violent symptoms which appear illustrated by agranulocytosis. The symptoms in the two conditions just compared result, of course, from different causes. The polymorphonuclears with their released ferments give much active daily immunity to the body. Let them decrease to a notable degree, and the whole organism flops. The leukocytes are thought to be the source of complement, and complement is present in the plasma, owing probably to their continued disintegration. The leukocytes lead an active life from three to five days long, both chemically and mechani-

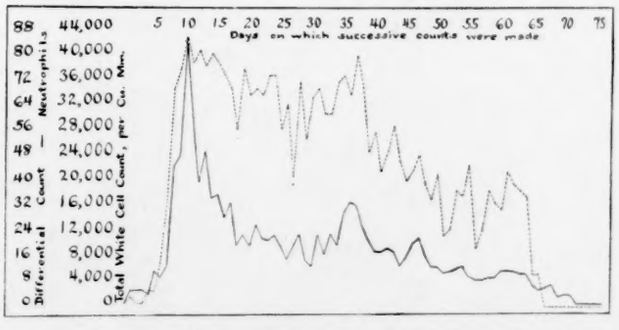


Fig. 6.—The curve of the total white count and neutrophilic percentage. Note the high point, at which time the patient showed the marked granular cell resistance to the widespread infection with the hemolytic streptococcus. Solid line, total leukocyte count; broken line neutrophils.

cally. Complement is probably the single most important factor in the destruction of the bacteria and the defense of the tissues. The terminal state of a continued advanced agranulocytic state is an infection. The patient may die from agranulocytosis before sepsis develops. We have evidence that the mere loss of the granulocytes for seven days is incompatible with life. Chemotaxis and phagocytosis are important, but the contribution of the granulocytes to immunity and the resistance of the organism is not only important but necessary to safety. And just here is the danger and importance of agranulo-

cytosis. Here is a disease whose very essence is the absence of the granulocytes. Their absence gives new slants and intimations on the part they play in immunity.

Pernicious anemia is a primary anemia, a definite disease entity. It is neither argument nor evidence against its existence to admit that there are cases of secondary anemia resulting from an obscure and overlooked cancer or a bothriocephalus infection that so closely imitates the primary anemia that difficulty and mistakes in diagnosis are not uncommon. Nor do we know the cause of pernicious anemia despite the enormous amount of work that has been done. There are diseases, such as aplastic anemia, whose blood picture may closely resemble agranulocytosis. There are conditions following arsphenamine and irradiation whose blood picture may closely resemble agranulocytosis. There are cases of sepsis about which the same remark may be made. But no one of these presents evidence that there is not a disease entity of unknown cause whose onset is sudden, with mental and physical collapse, which is preceded by cellular change and functional paralysis in the myelocytic division of the marrow, by the physiologic disappearance of these granulocytes from the blood stream, and the whole followed by relative loss of immunity, easy invasion of bacteria and resulting sepsis. We are far from a full knowledge of the blood and its diseases. Agranulocytosis is probably just another discovery in this field, and with it comes a clearer appreciation of its allied states, of the functions of the granulocytes, and of the part they play in immunity.

CONCLUSIONS

1. In the case of agranulocytosis reported, blood counts were made throughout its course, including a second attack.
2. Agranulocytosis is probably a specific disease entity with the primary pathologic condition in the bone marrow.
3. There are three onsets: a marrow onset, a blood stream onset, and a clinical onset, in the order named.
4. The disease is one of a group of diseases and conditions characterized by leukopenia and complete or near agranulocytosis.
5. The sepsis follows the agranulocytosis rather than precedes it.
6. Agranulocytosis itself causes characteristic symptoms of mental and physical collapse and a decreased resistance to bacterial flora.
7. The loss of the granulocytes is incompatible with life.

768 Juniper Street N. E.—155 Clairmont Avenue.

ABSTRACT OF DISCUSSION

DR. NATHAN ROSENTHAL, New York: The authors are to be congratulated on this most interesting and unique case. It practically gives the life cycle of a case of agranulocytosis, with the exception of this peculiar increase of leukocytes and polynucleosis, which so far have not been observed in other cases.

DR. J. E. TALLEY, Philadelphia: The continuous study of this patient from day to day over so long a period has given most useful data on this elusive disease. The four periods, namely, agranulocytosis, septicemia, temporary recovery and agranulocytosis and death, teach much. The original conception of the condition was an agranulocytosis due to poisons, either bacterial or chemical, occasionally but not always associated with an angina. The remission in this case and the recovery in others show that there is an inhibition and not destruction of the ability of the bone marrow to produce granulocytes. The more common history is death in a few days or at most a few weeks after coming under observation. The question as to whether the bone marrow defect is primary and the infection secondary or vice versa is a moot point. However, in this case the fact that the granulocytes disappear six days before the appearance of the clinical symptoms is a strong suggestion that the inability of the bone marrow to elaborate neutrophils was primary here and that the blood stream infection and localized necrotic areas were secondary. Infection through them in this case was apparently not the causative factor. The clinical state must depend on a varying individual resistance to the etiologic agents. In these patients the bone marrow gives a different reaction to poisons than that of most patients. It cannot be a permanent condition, as is shown by this case and the cases quoted by Blumer, in which the same patient had reacted with the usual polymorphonuclear increase in one attack of infection and had shown an agranulocytic reaction in another attack. Possibly if these patients had been studied with the same continuity as the patient under consideration, the picture might have been the same. The authors' conception is a disease entity of unknown character which attacks the bone marrow and inhibits the production of neutrophils. Their argument that there is as much reason for considering agranulosepsis an entity as there is for pernicious anemia seems to be a reasonable suggestion. The etiology of both still awaits discovery. Agranulosepsis is a succinct name for the condition under discussion since the authors apparently believe that the septicemia is secondary and often terminal. Remissions and recoveries occur. Agranulocytosis may be progressive, increasing with the increasing infection. With respect to the necrotic areas which may occur anywhere, bacterial embolism seems a likely explanation. Dr. John Eiman suggests that the Schwartzman reaction must not be forgotten in this connection. If a small amount of bacterial filtrate containing both metabolic products and the autolysins of the bacteria is injected intradermally and later a larger dose of the same filtrate is injected intravenously in the same animal, there occurs at the site of the intradermal injection a hemorrhagic necrosis.

DR. J. E. GORDON, Detroit: Twenty cases of agranulocytosis have been noted in Detroit. With more general knowledge of the existence of this condition there is a tendency to consider too many instances of acute disease with marked leukopenia as agranulocytic angina. The need for distinguishing agranulocytosis from other allied processes has recently been emphasized by Blumer. The classification presented by Drs. Roberts and Kracke is to be commended. It constitutes a working basis for elaborating present knowledge of this group of diseases. Current conceptions of agranulocytosis as a process of acute evolution with rapidly fatal course apparently demand revision. Ideas have been based on the end-result of the disease rather than on knowledge of its entire course. Practically all reported fatal cases have occurred during the period when neutrophils are essentially absent from the peripheral blood. Although uncommon, death may occur at a time when the total leukocyte count is relatively high and the percentage of granulocytes is within normal limits. I have observed such an instance which followed recurrent attacks with the agranulocytic state.

The loss of tissue resistance in the absence of neutrophilic leukocytes of the blood is to be emphasized. Infection by opportunist invaders rapidly follows. The resulting lesions are generally of the mucous membrane but not necessarily limited to those structures. A single case reported in the German literature describes lesions of the skin as well as of the mucous surfaces. I have recently observed a similar instance, the first reported in America; an agranulocytosis in which lesions of the skin were extensive and numerous, one more than 12 inches in diameter.

DR. F. G. BRIGHAM, Boston: My chemical technician is suffering from this disease and I have seen her during two of three attacks this winter. In December she had a severe sore throat, high temperature and extreme prostration, and was very sick. I did not see her at that time. No laboratory examinations were made. We heard that she had a bad attack of Vincent's angina. She came back to the office in about three weeks, badly run down. At that time she had 60 per cent of

hemoglobin and about 3,500,000 red cells; white and differential counts were within normal limits. She was given a vacation. She resumed her work early in February. Within a few days after she returned, she became ill again. Her temperature was 103 F. She was very sick. On admission to the hospital, she was stupid and in sort of a typhoidal condition. She had a definite angina of the mouth, with salivation. The white count was 800, with absolutely no polymorphonuclears in the blood. All other examinations were made, including a blood culture, and nothing particular was found. She had this temperature for about five days. Her white count remained below a thousand, and she had no polymorphonuclears in the blood. Her temperature dropped more or less by crisis about the seventh day. At that time her white count was about 2,500. There were then about 15 to 17 per cent of polymorphonuclear leukocytes in the blood. Thinking a mistake had been made, I had the count repeated within an hour. It was then over 3,000. In another hour it was over 4,000. She made a gradual but slow convalescence. Nothing further developed. Her blood returned to normal. Ten days ago she had a white count of 7,200. She was perfectly well and the differential count was 68 per cent. One week later the white count had dropped to 5,400, with about 43 per cent of polymorphonuclear leukocytes. Six days ago she had another recurrence of fever and was quite sick. The white count was 600. She had absolutely no polymorphonuclear leukocytes. She did not develop an angina until two days later but she did develop several septic conditions on the hands, two of which had to be opened. Just before I left, two days ago, she developed an acute parotitis. Her temperature was normal four days ago in the morning and during the next two hours her white count went up to over 5,000, with polymorphonuclears over 50 per cent. She stayed at that level until the parotitis developed, when her white count remained the same; her temperature shot up and there were 78 per cent of polymorphonuclear leukocytes in the blood.

DR. WILLIAM H. GORDON, Detroit: As in any new disease, the treatment of this condition has been chaotic. At present the better treatment is considered either transfusion of blood of the same type, or the use of proteins, shock therapy and roentgen treatment of the bones. Recently one of my patients developed an abscess after the injection of blood serum in the hip. The leukocyte count went from below 1,000 up to 17,500 and the polymorphonuclears from zero up to 96 per cent. The patient recovered from that attack. Soon after this she had a third recurrence. An injection of 2 cc. of turpentine into the hip was made. She developed an abscess, and with this her leukocyte count advanced to 6,000, then 8,000; then it came down and remained around 5,000 and 6,000. Four months after her last attack, the leukocyte count was between 6,000 and 8,000, with 80 per cent polymorphonuclears.

DR. STEWART R. ROBERTS, Atlanta, Ga.: The onset of the first attack was identical with the onset of the second attack. The areas of redness in the throat and the necrotic spot on the tongue in the first attack were identical with those in the second attack. In the second attack we saw this patient actually wilt before our eyes in the course of an hour or two. It seems from this case that there is a definite method of collapse with agranulocytosis after the granulocytes have been absent from the blood stream approximately four days. The absence of granulocytes gives new intimations as to the part the granulocytes play in immunity. It is to be remembered that the leukocytes are the chief source of complement. With the absence of the leukocytes, with the loss of the complement which they daily generate, and with the loss of the active daily immunity which they confer on the tissues, the normal bacterial flora ever present on skin and conjunctiva and mucous membrane of the digestive tract from mouth to anus has, particularly in the mucosa of the digestive tract, an easy and unobstructed entrance. I think this accounts for the multiple and varied bacteria that have been reported from culture. Evidence has been presented in this case that agranulocytosis causes characteristic symptoms of mental and physical collapse. Finally, evidence is presented that the loss of the granulocytes after a certain time, possibly variable in each individual, is incompatible with life.

THE VARICOSE VEINS SLOUGH

NORMAN J. KILBOURNE, M.D.
LOS ANGELES

Communications that I have received show that sloughs following the injection treatment of varicose veins are occurring with more frequency than one would suppose from case series reported. These sloughs, if not properly treated, may cause prolonged disability. The literature on the subject is not only disappointing but actually misleading—disappointing because it gives no adequate guidance to those so unfortunate as to have incurred these accidents, and misleading because, as I shall show, it contains misstatements partly responsible for the sloughs.

DIAGNOSIS

An absolute diagnosis cannot be made at the time of injection. As has been frequently stated, some injection fluids, if they escape outside a vein, cause an immediate burning pain at the site of injection; but the converse statement does not hold true. An immediate pain at the site of injection does not necessarily mean an extravascular escape of fluid. Many perfect injections give pain at the site of injection and at this site only. Such pain is suggestive but not conclusive evidence of extravascular escape of fluid. It should lead to a second aspiration of blood before injecting.

Not until from one to four days after injection can a positive diagnosis be made. Then one of two things will be observed: Either a bleb at the site of injection, or a copper-brown eschar resembling an early decubitus gangrene, foretells that a slough will occur.

ETIOLOGY

The gangrene is due to one of three causes:

1. The needle, at the moment of injection, is out of the vein. Sometimes this is because the needle has transfixed the vein.
2. The needle has been correctly placed in the vein, but the solution has leaked out through the hole or holes made in the vein.
3. A very thin-walled vein, receiving highly irritant solutions, may burst.

SLOUGH-PROOF SOLUTIONS

Contrary to recent statements in the literature, I am obliged to state that I know of no solution capable of obliterating a varicose vein which may not cause a slough if it is also injected extravascularly. It is all very well to inject a fluid subcutaneously, find that no slough has occurred, make a histologic section showing only fibrosis, and then declare that one's pet solution is proof against sloughing. It is not the solution injected subcutaneously but the solution which goes half in and half out of a vein which causes the slough.

Another solution which has been reported in the literature as incapable of causing slough when injected extravascularly is dextrose. Here, again, the authors base their conclusions on injection extravascularly alone. I have two cases to report showing that sloughs can occur from its use.

A correspondent in the Middle West reports: "Invert sugar was recommended to me. Result—a necrotic area broke beneath the knee joint—robust female aged 44. Am worried about the result. I injected 2.5 cc. under strictly aseptic precautions. . . . It was given into a vein about two inches below the knee joint flexor surface. The third day following injection I was called to see the patient, who was in bed with a large goose egg dark swollen area at the

site of injection. Temperature 101 F. Patient had had several chills. After the area broke open and drained, temperature went down. I used a small sized needle when I injected invert sugar. The invert sugar had been recommended to me because 'even if a little should leak out of a vein, none of the men has ever had a slough as they do with the sodium salicylate solutions'."

Fig. 1.—Low power of slough area and tissue around it.

Another case of sloughing after injecting dextrose followed an effort to inject a vein in treating postoperative shock. This injection was not given into varicose veins, but it is evidence that dextrose given extravascularly can cause a slough. This case is reported through the courtesy of Dr. W. S. Kiskadden, who was called as plastic surgeon to repair the injury.

In this case, an effort was made to inject dextrose intravenously into a vein on the dorsum of the right hand. On the next day, a blister appeared. On the second day the whole hand and wrist became swollen. On the twenty-fourth day the crust loosened, leaving the tendons bare over an area covering most of the dorsum of the hand. Not until three months later was the wound in condition to make a skin graft possible.

It is quite true that sodium salicylate solutions and sodium chloride solutions are more likely to cause sloughing than quinine solutions and dextrose solutions. The strong sodium salicylate solution is the worst offender in this respect; but sodium chloride solution may also cause sloughs. In a case reported by Vogel [1] following injections of sodium chloride, there were five sloughs on the legs of a single patient. I have seen four cases in which there were small sloughs following injections of quinine solution. Because the sloughs following quinine injections are less severe than those following the use of most other solutions, I still advise the use of quinine solutions by men who are starting this treatment and who have not had extensive experience in intravenous treatment; but I am convinced that we now have no solution which is slough-proof.

According to another fallacy in the literature, a slough can be prevented if a diluting solution is given subcutaneously afterward. There is some truth in this statement, and such diluent solutions are of value and will be discussed later; but I have seen one slough in one of my own cases when I know that about 10 cc. of physiologic solution of sodium chloride had been injected subcutaneously immediately after injection of the vein. This was the first injection I ever made, and while the slough was a small one, I shall always remember it, for it was long in healing. There is only one sure protection: care, based on experience.

PREVENTIVE TREATMENT

This care must have in mind the pathogenesis of the gangrene. In order to be sure that the needle is in the vein, blood should be aspirated into the syringe before injecting, and this must be done at the last moment, just before the injection is made.

In order to prevent leakage out of the aperture in the vein, it is best to inject slowly so that the pressure will not be raised too rapidly. Before the needle is withdrawn, it is best to wait a few seconds after the injection to allow the vein walls to contract. If unsuccessful efforts have made perforations in the vein and transfixed it, the injection should not be made near this site at this time lest, even if a good injection is made, the fluid may leak out through the other holes made previously. Quinine solution is the worst from the standpoint of leakage. With this solution, it is necessary to keep pressure with the finger over the site of injection as the needle is withdrawn, and to continue the pressure for three minutes. This prolonged pressure is unnecessary with most of the other solutions.

In order to prevent bursting of the veins, it is important to watch for dark, thin-walled veins lying just beneath the skin, for these are the ones liable to burst. Strong salicylate solutions should not be used in veins of this type. Two or three drops of quinine, or 2 or 3 cc. of the sugar solutions are suitable. Injection is best given a few inches away from these veins, allowing the

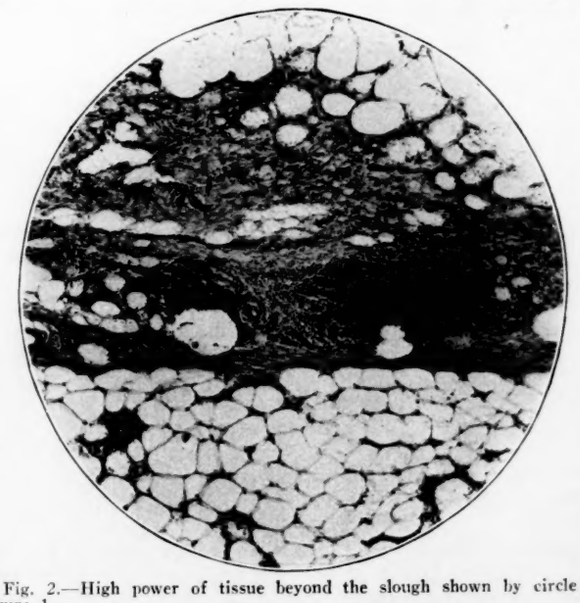


Fig. 2.—High power of tissue beyond the slough shown by circle in figure 1.

fluid to be communicated to them through the vein, and increased intravascular pressure should be avoided by injecting slowly.

IMMEDIATE TREATMENT

If one suspects, immediately after injecting, that some of the solution may have escaped from the vein, it is best to inject some diluent solution subcutaneously. I have found sterile water and physiologic solution of

sodium chloride too painful for this purpose, and prefer 1 per cent procaine hydrochloride solution to the amount of from 5 to 10 cc. It is advisable for the occasional worker to have it at hand.

CURATIVE TREATMENT

When gangrene has once developed, the most important measure is prevention of early infection. If infection enters later, after the thrombus in the lumen of the vein has been organized, less harm is done. If it enters early, it will spread up into the lumen of the vein, causing a long, deep infected sinus which will not heal. These long, infected sinuses are best treated by slitting them wide open and treating as described farther on. The prevention of such infection is paramount. I like best an alcoholic acetone solution of gentian violet made up as in the accompanying table.

Composition of Alcoholic Acetone Solution of Gentian Violet

	Gm. or Cc.
Gentian violet	1
Acetone	3
Alcohol, 95 per cent	17
Distilled water, q. s.	ad 30

This solution has three advantages: while relatively innocuous to normal tissue, it is highly inhibitory to skin bacteria, being bacteriostatic to the staphylococcus in dilutions of one to a million; it has remarkable penetrative powers; it dries quickly. This solution is given to the patient with a few applicators with instructions to paint it on the gangrenous area twice daily until the eschars begin to separate. A gauze dressing is kept on meanwhile. It is also well to have the patient keep off the limb as much as possible and wear an Ace bandage, as the local rest to the part tends to minimize the spread of any infection.

The large, wide open area of gangrene which has started to slough may not heal for years. It is remarkable how difficult it is to get rid of the seminecrotic tissue, which may take months to separate. It has been recommended that such areas be excised at once, but to do this early is a risk, for infection may be spread by opening the lymphatics. One fatality from this procedure has been reported. I doubt whether this fatality was due to extraneous infection, as was supposed. The infection is usually already in the wound and has extended far beyond what one would suppose to be its limits, and it may spread rapidly if the lymphatics are cut open. Even after a long period of time, the bacteria may be present at a considerable distance from the wound. In the accompanying photomicrographs there is shown a section through one of these sloughs with the fatty tissue surrounding it.

This patient had received an injection of sodium salicylate in a neighboring city, and the slough that resulted remained unhealed for fourteen months. When she came to me there was a sinus about 1 cm. in diameter and 2 cm. deep on the anterior surface of the lower leg, surrounded by a very hard indurated area. I excised this, peeling it out of the fatty tissue of the leg and staying well outside the indurated mass. Microscopic section was a surprise. The low power photomicrograph shows an area of leukocytic infiltration in the fat at a considerable distance from the edge of the pyogenic membrane of the slough. This area is indicated by a circle in figure 1 and is shown in a higher power in figure 2.

It may be possible to excise these areas early without opening lymphatics to the spread of infection by the use of some form of cautery, but I have had no experience in doing so. When the slough is large, after the crust has separated, I have found this treatment effective: The patient is put to bed, in order to improve the circulation, and surgical solution of chlorinated soda is applied. This solution has but little action after the first half hour and should be left at the bedside with a medicine dropper and a timepiece, with orders that the patient shall irrigate the wound every half hour. This treatment rapidly removes the necrotic material and clears up infection. The solution in this locality has the unusual advantage that it does not cause the burning pain that it occasions in other wounds, as these areas are relatively insensitive.

Sloughs of very long duration may be excised, but that it is best not to attempt to obtain healing by first intention will be evident to any one who will study these photomicrographs. If the area is excised, the wound should be drawn only partly together until clean granulation tissue free from infection has filled up from the bottom. Other considerations of technic important in preventing sloughs have been mentioned in an earlier contribution.[2]

FURTHER REPORTS

It is necessary that minor as well as major accidents following intravenous injections be reported for the good of humanity and the progress of the profession. Men do not like to report their own bad results, and I would welcome communications in order that they may be reported when a sufficient number appear to throw further light on the problem.

2007 Wilshire Boulevard.

LUNG ABSCESSES

A CLINICAL STUDY, WITH ESPECIAL EMPHASIS ON CONSERVATIVE TREATMENT *

H. I. SPECTOR, M.D.
ST. LOUIS

A disease that dates back to the days of Hippocrates [1] is naturally responsible for the accumulation of a vast literature saturated with numerous contradictions as to its various aspects. It is for this reason that a review of lung abscesses leaves one with a great deal of confusion in regard to the whole subject and with a considerable degree of pessimism in regard to treatment in general, and medical treatment in particular.

It is my purpose in this paper, first, to show by the results obtained that the existing pessimism regarding expectant treatment of lung abscesses is unjustifiable; and, second, to encourage others to adopt, where possible, a conservative harmless medical regimen in preference to bronchoscopy, or surgical measures such as pneumothorax, incision and drainage, phrenicectomy, thoracoplasty, lobectomy or cautery pneumectomy.

This study is based on thirty-five cases of nontuberculous abscesses of all types, seen at St. Mary's Infirmary (a part of St. Louis University Group of Hospitals) during the period from Jan. 1, 1926, to Jan. 1, 1930. That the results obtained with conservative treatment may be more conceivable, a brief review of the different phases of the subject is essential.

2. Kilbourne, N. J.: Varicose Veins: Considerations of Safety, J. A. M. A. **92**: 1320-1324 (April 20) 1929.

* Read before the St. Louis Medical Society, March 25, 1930.

* From the Department of Internal Medicine, Chest Division, St. Louis University School of Medicine.

1. Hippocrates, quoted by Joannides, Minas: Etiology of Pulmonary Abscess, Surg. Gynec. Obst. **47**: 449-459 (Oct.) 1928.

A perusal of the early literature on the subject impresses one with the significant fact that, while pneumonia was recognized as the disease causing a great many abscesses, no mention was made of operations on the upper respiratory tract as a causative factor. For instance, Murphy,[2] in 1898, reporting seventy-one collected cases from the literature, stated that pneumonia was a factor in 46 per cent of the cases, but he failed to class operations on the upper respiratory tract as etiologic factors. However, since 1912, when Richardson,[3] pointed out the fact that lung abscesses may follow tonsillectomy under general anesthesia, less emphasis has been placed on pneumonia as a causative agent, and more importance has been given operations on the upper respiratory tract; for instance, Whittemore,[4] in 1922, reporting eighty-six cases, stated that 61 per cent of the abscesses were directly preceded by some operation on the upper respiratory tract done under general anesthesia, and that bronchopneumonia was a cause in only thirteen cases, or 15 per cent, in his series. At the present time, it is believed by some observers, particularly Lockwood,[5] that lung abscesses are a rare sequal of lobar pneumonia and are probably more common following bronchopneumonia, while operations on the upper respiratory tract are increasingly gaining recognition as a causative factor of lung abscesses.

In this connection it should be mentioned that it is gradually becoming the belief of many observers that lung abscesses may be primary. In fact, there is enough clinical [6] and experimental [7] evidence to suggest the possibility that abscesses may be preceded by a primary stage of pneumonia, and that the latter may therefore be a vital factor in the mechanism of abscess formation.

As to the mode of entrance into the lung of the causative organisms responsible for the production of abscesses, it will suffice to mention the present two main, opposing, self-explanatory theories: namely, the bronchogenic or aspiration theory led by Moore,[8] Richardson,[9] Lemon,[10] Myerson [11] and others; and the hemotogenous or embolic theory led by Cutler,[12] Holman,[13] Fetterolf and Fox,[14] and Schlueter and Weidlein.[15] Lack of space prevents a discussion of these theories except the mention of the fact that recent experimental work by C. M. Van Allen [16] and his co-workers seems to indicate that a combination of the two theories may explain the pathogenesis of a certain obscure group of post-operative abscesses of the lung. Organisms may also enter the lung and produce abscesses by direct extension from an adjacent suppurative process, through the diaphragm or following injuries to the chest and intrathoracic organs.

TABLE 1.—*Age and Sex of Patients*

Ages	Number	Per Cent
1 to 10	1	
10 to 20	4	
20 to 30	4	
30 to 40	3	
40 to 50	9	51
50 to 60	9	
60 to 70	4	
70 to 80	0	
80 to 90	1	
Total	35	
Sex		
Male	20	57
Female	15	43
Total	35	

TABLE 2.—*Causation*

Etiologic Factors	No.	Bacterial Flora in 20 Cases	No.
History of upper respiratory infection	11	Staphylococcus	14
Lobar pneumonia and bronchopneumonia	9	Pneumococcus	11
Malignant conditions	4	Streptococcus	10
Tonsillectomy	2	Micrococcus catarrhalis	7
Unknown cause	3	Fusiform bacilli	2
Puerperal infection	2	Monilia	2
Induced abortion	1	Hoffmann bacilli	2
Aspiration of vomitus	1	Colon bacilli	1
Diabetes	1	Unidentified bacillus	1
Terminal in gastric fistula with peritonitis	1		

A point worth mentioning about etiology is the fact that there is considerable experimental [17] and clinical [18] evidence to show that chronic infections in the upper respiratory tract, the retention in the lungs of certain anaerobes ordinarily found in the oral cavity, and pre-existing bronchopulmonary pathologic change each play a considerable rôle in the production and in the chronicity of abscesses. Laboratory experiments [19] also seem to indicate that anything that tends to abolish the cough reflex during anesthesia, or to increase the cough after anesthesia, may be instrumental in the production and in the chronicity of abscesses. Pathologically, abscesses may occur, according to Aschner,[20] in the course of a bronchus following operations in the upper respiratory tract and are termed bronchiectatic abscesses; or they may be situated in the parenchyma of the lung following pneumonia or infected emboli and are then called extrabronchial abscesses; or they may be the result of a widespread infection by way of air passages and are then known as supperative pneumonitis. There are also abscesses secondary to the disintegration of tumor masses.

2. Murphy, J. B.: Surgery of the Lung, J. A. M. A. **31:** 281 (Aug. 13) 1898.
3. Richardson, C. W.: Tonsillectomy, with Consideration of Its Complications, Washington M. Ann. **11:** 85-98, 1912-1913.
4. Whittemore, W.: Nontuberculous Pulmonary Abscess, Boston M. & S. J. **188:** 497-501 (April 5) 1923.
5. Lockwood, A. L.: Lung Abscess, Arch. Surg. **6:** 314-320 (Jan., pt. 2) 1923.
6. Lambert, A. V. S., and Miller, J. A.: Abscess of the Lung, Arch. Surg. **8:** 446-456 (Jan., pt. 2) 1924.
7. Smith, D. T.: Fusospirochetal Disease of the Lungs: Its Bacteriology, Pathology and Experimental Reproduction, Am. Rev. Tuberc. **16:** 584-598 (Nov.) 1927.
8. Moore, W. F.: Pulmonary Abscess, J. A. M. A. **78:** 1279-1281 (April 29) 1922.
9. Richardson, C. W.: Abscess of Lung and Method of Prevention in Nasopharyngeal Surgery, Ann. Otol. Rhin. & Laryng. **31:** 960-963 (Dec.) 1922.
10. Lemon, W. S.: Aspiration, Arch. Surg. **12:** 187-211 (Jan., pt. 2) 1926.
11. Myerson, M. C.: Lung Abscess Following Tonsillectomy: A Contribution to the Etiology, Arch. Otolaryngol. **1:** 137-146 (Feb.) 1925.
12. Cutler, E. C.: Experimental Production of Postoperative Abscess of Lung, Tr. Med.-Chir. Soc. Edinburgh, 1927-1928, pp. 213-221, In Edinburgh M. J. Nov. 1928.
13. Holman, E.: Etiology of the Postoperative Pulmonary Abscess, Ann. Surg. **83:** 240-245 (Feb.) 1926.
14. Fetterolf, G., and Fox, H.: Reaction of Paratonsillar Tissues to Tonsillectomy; Study in Etiology of Post-Tonsillectomy Pulmonary Abscess, Am. J. M. Sc. **166:** 802-825 (Dec.) 1923.
15. Schlueter, S. A., and Weidlein, I. F.: Postoperative Lung Abscess: Experimental Study, Arch. Surg. **14:** 457-528 (Feb.) 1927.
16. Van Allen, C. M.; Adams, W. E., and Hrdina, L. S.: Bronchogenic Contamination in Embolic Abscess of Lungs, Arch. Surg. **19:** 1262-1278 (Dec., pt. 2) 1929.
17. Crowe, S. J., and Scarff, J. E.: Experimental Abscess of Lung in Dog, Arch. Surg. **16:** 176-178 (Jan., pt. 2) 1928.
18. Brown, M. D.: Relations of Infections of the Upper Respiratory Tract to Nontuberculous Infections of Chest, Colorado Med. **19:** 100-103 (May) 1922. Lemon (footnote 10).
19. Weidlein, I. F., and Herrmann, L. G.: Abscess of Lung; Experimental Studies in Chronicity, J. A. M. A. **91:** 850-853 (Sept. 22) 1928.
20. Aschner, P. W.: Pathology of Lung Suppuration, Ann. Surg. **75:** 321-330 (March) 1922.

As to types of abscesses, the following are recognized: acute and chronic, which may be either single, bilateral or multiple and may be situated in the hilar region, in the center or in the periphery of the lung. Statistics seem to show that the lower lobes are more frequently involved than the upper lobes, and the right more frequently than the left lung. However, Whittemore [21] and Wessler [22] have each reported a series of cases in which there were more instances in the upper lobes than in the lower.

It is obvious that a disease with such a variable etiology and pathology will manifest a multiplicity of symptoms. Generally the patient will complain of chills or a chilly sensation, a pain in the chest, and a dry paroxysmal cough, followed later by profuse expectoration of malodorous or distinctly foul sputum. A septic temperature, a rapid pulse, and a leukocyte count varying from 10,000 to 40,000 are usually present. A shifting to the left of the neutrophilic leukocytes according to the modified Arneth and the Schilling methods [23] is especially marked in the acute cases. Night sweats, loss of weight and hemoptysis are a part of the clinical course. Recurrent chills are more frequent in multiple abscesses than in single ones. Clubbing of the fingers is usually seen in the chronic cases. It is well to remember that occasionally, instead of having a penetrating

TABLE 3.—*Distribution and Type of Thirty-Five Abscesses*

	Solitary Abscesses				Bilateral	
	Right Lung	Left Lung	Multiple		Monolobar	Malignant
					2	4
Upper lobe.....	5	1	Right lung.....	1		
Middle lobe....	2	..	Left lung.....	1		
Lower lobe.....	4	9	Both lungs.....	6		
	11	10		8	2	4

characteristic, the sputum may have a sweetish odor or may be entirely odorless. Elastic tissue is not always present in sputum, occurring only twice in Lockwood's [24] series of fifty-two cases and five times in our series.

The results of the physical examination will vary depending on the location and size of the abscess and on whether or not rupture has occurred. Hilar and centrally placed abscesses present few physical changes; peripheral ones, if large enough, may present scattered fine or medium râles over the abscess area. After the abscess has ruptured, signs of cavitation may be present, such as bronchial breathing, medium and coarse râles, and whispering pectoriloquy. The symptoms and physical conditions will naturally be complicated by the onset of empyema, bronchiectasis, brain emboli or abscess of the brain. Generally speaking, the symptoms are out of proportion to the changes observed, the most constant physical observations being dulness on percussion and a diminution of breath sounds.

Because of the scarcity of pathologic changes, the diagnosis is frequently difficult, especially before rupture has occurred. An accurate detailed history as to the possible etiology and mode of onset may be of great aid in diagnosis. After rupture of the abscess has taken place, the diagnosis is relatively simple. Multiple abscesses too often remain unrecognized and the diagnosis too frequently is made at the autopsy table.

The roentgen ray is perhaps the most important single factor in the recognition of an abscess. In the early stage the abscess is frequently seen as an acute irregular consolidation, which is not characteristic in appearance and may resemble a pneumonic tuberculous consolidation, interlobar empyema or a new growth. The roentgenographic appearance after rupture depends on the amount of secretion present. If the cavity is partially filled, a fluid level can be seen with a rarefied area above. If completely filled, one cannot distinguish between the infiltration and the fluid. An extensive zone of congestion is frequently seen around the abscess. It should be remembered that early diagnosis is as important in lung abscesses as it is in tuberculosis and for the same reason; namely, that it offers a more favorable prognosis.

Briefly, the prognosis will depend on the cause, the type, the location and the duration of the abscess. Those abscesses following inhalation of foreign bodies have a good prognosis. Solitary abscesses offer more encouragement than multiple, and apical and hilar abscesses have a better outlook than central or peripheral ones; acute have a better prognosis than chronic. That the character of the treatment applied will definitely influence the prognosis is self-evident.

TREATMENT

No phase of the study of lung abscesses is more fascinating than a review of the changing ideas as to treatment. If one looks back into the history of the subject, one finds that surgery has always occupied a prominent place in the treatment of lung abscesses and, until recently, was considered the desired treatment, the one offering the most to the sufferer of the disease regardless of the type or the location of the abscess. Even today there are some physicians who adhere to this view. Medical treatment, although tried by Greene [25] as early as 1860, had few followers then and, until recently, not many more. The results obtained with expectant treatment were disheartening. One needs but quote the mortality statistics following medical treatment reported by Sauerbruck [25] and Lenhartz [26] of Germany or Pearse Williams [27] of England to be convinced of the veracity of this statement, since a mortality ranging from 60 per cent to 100 per cent is reported by these observers; nor does one find more encouragement in this regard in this country. Lord,[28] in a study of 227 cases, estimated a mortality of 75 per cent treated by medical means and a mortality of 47.8 per cent treated surgically. Lockwood,[24] in a review of 1,117 cases, reported an average mortality of 58.6 per cent treated medically and 35 per cent treated surgically.

The relatively recent reports of the results obtained with medical treatment of lung abscesses by Pritchard [29] and by Miller and Lambert [30] have stimulated a renewed interest in the possibilities of conservative treatment. It is because of this fact that one reviewing the more

21. Whittemore, W.: Lung Abscess, S. Clinics N. America **1:** 765-784 (June) 1921.
22. Wessler, Harry: Suppuration and Gangrene of the Lung; a Study of One Hundred Cases, J. A. M. A. **73:** 1918 (Dec. 27) 1919.
23. Spector, H. I.: The Modified Arneth and the Schilling Blood Differential Counts in Tuberculosis; Comparison of Their Diagnostic and Prognostic Significance, Am. Rev. Tuberc. **21:** 265-277 (Feb.) 1930.
24. Lockwood, A. L.: Abscess of Lung, Surg. Gynec. Obst. **35:** 461-492 (Oct.) 1922.
25. Quoted by Buschman, T. W.: Extrapleural Pneumolysis in Treatment of Lung Abscess, Northwest Med. **23:** 556-559 (Dec.) 1924.
26. Lenhartz, quoted by Whittemore, W.: Etiology and Treatment of Nontuberculous Pulmonary Abscess, Surg. Gynec. Obst. **38:** 461-465 (April) 1924.
27. Williams, T. P.: Abscess and Gangrene of the Lung, Lancet **1:** 336-337 (Feb. 13) 1926.
28. Lord, F. T.: Pulmonary Abscess, Boston M. & S. J. **192:** 785-788 (April 23) 1925.
29. Pritchard, J. S.: Value of Rest in Empyema and Lung Abscess, J. A. M. A. **79:** 2208-2210 (Dec. 30) 1922.
30. Miller, J. A., and Lambert, A. V. S.: Treatment of Abscess of Lung, Am. J. M. Sc. **171:** 81-93 (Jan.) 1926.

recent literature perceives the pendulum beginning to swing from the radical to the conservative side.

To summarize the present status of treatment of lung abscesses as found in the recent literature, it must be stated that radical surgery, perhaps in a somewhat modified form, still occupies a predominant place. Conservative treatment, that is, absolute bed rest, diet and postural drainage, is gradually making an impression and is now being used by many surgeons as a preliminary measure to radical treatment. Artificial pneumothorax, advocated by Tewksbury,[31] bronchoscopy, by Jackson,[32] Tucker,[33] Clerf [34] and others, and vaccine [35] and drug therapy [36] each has its followers.

In the treatment of cases I was considerably influenced by the work of Pritchard and of Miller and Lambert. The conservative method of treatment was adopted as follows: patients were kept at complete bed rest during the acute stage of the disease; postural drainage [37] was instituted several times a day, the frequency of treatment and the length of time of treatment depending on the tolerance of the patient to this form of treatment. In this series the very acutely ill patients did not always tolerate postural drainage for more than a few minutes at a time. In conjunction with this treatment patients were given soft but nourishing foods and medication to control the annoying symptoms. No especial effort was made to abolish the cough reflex, and patients were encouraged to expectorate as much as possible.

If patients did not show any improvement within a reasonable length of time, and if the abscess was not peripherally placed, pneumothorax was attempted. If the latter was not successful, more radical surgery was resorted to when possible. It was necessary to use surgical measures in only one case.[38]

Bronchoscopy, transfusions and arsphenamine were used twice each in different cases and as a last measure in the hopeless cases. I was not favorably impressed with these measures, possibly because of the fact that their application proved futile. I was not inclined to use them in cases that were constantly improving with expectant treatment alone.

After complete subsidence of the acute symptoms, patients were discharged from the hospital with instructions to continue treatment at home and to report to the outpatient chest clinic for further observation. As long as the physical and roentgen observations indicated that a disease condition was still present, the patients were strongly urged to remain in bed the major portion of the day. Prolonged bed-rest was stressed because I share with others the view that bed-rest aids considerably in the absorption of the inflammatory exudates and, when used in conjunction with postural drainage, helps significantly in the healing of the abscess. They were at first treated like active, and later quiescent, cases of tuberculosis, and the patients were not permitted to return to work until such time as the symptoms, physical observations, and roentgenographic examination failed to reveal any remaining pathologic changes; they were then, and only then, considered as cured. Cases in which the patients were clinically well but in which physical and roentgenographic observations indicated that the lesion had not completely disappeared were classed as improved.

A recent follow-up revealed that, with the exception of one patient who could not be traced, all of the cured patients have remained well. Four of the improved patients could not be found and these were patients who failed to cooperate by refusing to report regularly to the chest clinic after their discharge from the hospital.

An analysis of the accompanying tables and illustrations will reveal the character of abscesses treated and the results obtained with conservative measures. Figures 1, 2 and 3 show a solitary abscess before and after treatment. Figures 4 and 5 show a bilateral lung abscess before and after treatment.

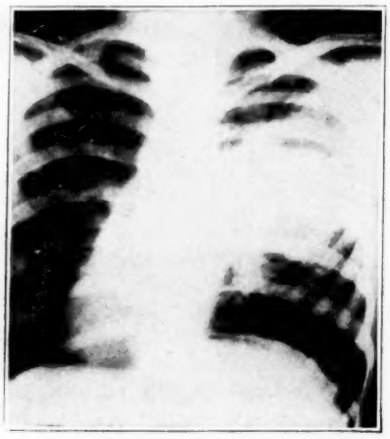


Fig. 1 (case 1, Oct. 21, 1926).—Solitary lung abscess with fluid level in lower part of right upper lobe. This abscess was completely healed at the end of three months.

Fig. 2 (case 1, Oct. 28, 1926). —Lateral view of abscess.

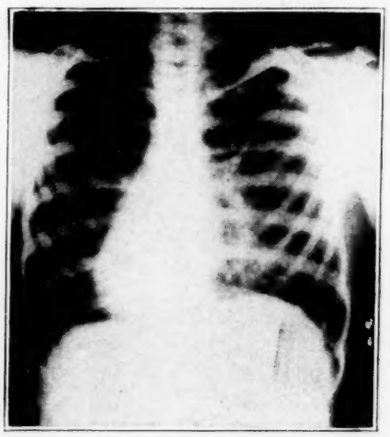


Fig. 3 (case 1, Dec. 13, 1929).—Appearance approximately three years later. No evidence of abscess is seen; patient has been in good health and has been attending school during this period.

31. Tewksbury, W. D.: Acute Pulmonary Abscess Following Tonsillectomy, Treated with Artificial Pneumothorax, Ann. Clin. Med. **4**: 347-349 (Oct.) 1925.
32. Jackson, Chevalier: Post-Tonsillectomic Pulmonary Abscess, Atlantic M. J. **29**: 309-315 (Feb.) 1926.
33. Tucker, Gabriel: Bronchoscopic Treatment of Lung Abscess, Am. J. Roentgenol. **15**: 419-421 (May) 1926.
34. Clerf, L. H., and Lukens, R. M.: Bronchoscopy in Diagnosis and Treatment of Lung Suppuration, J. Indiana M. A. **18**: 1-4 (Jan.) 1925.
35. Jacobs, P. A.: Vaccine Therapy in a Case of Lung Abscess, Cleveland M. J. **9**: 946-950, 1910.
36. Kline, B. S.: Pulmonary Abscess and Pulmonary Gangrene, J. A. M. A. **90**: 2008-2013 (June 23) 1928. Koptev, A.: Treatment of Abscess of Lungs by Intravenous Injection of Urotropin, Vrach. Gaz. **31**: 767-770 (May 31) 1927. Brulé, M., and Hillemand, P.: Emetine in Treatment of Abscess of Lung, Bull. et Mém. Soc. Méd. d. hôp. de Paris **48**: 1500 (Nov. 7) 1924; abstr., J. A. M. A. **83**: 2050 (Dec. 20) 1924.
37. Quincke, H.: Zur Behandlung der Bronchitis, Berl. Klin. Wchnschr. **35**: 525-526, 1898.

38. Incision and drainage were performed by Dr. William E. Leighton of the surgical department.

COMMENT

It is evident from table 4 that the prognosis is much better in solitary than in multiple abscesses, since 89.6 per cent of the former were either improved or cured while 100 per cent of the latter had a fatal ending.

TABLE 4.—*Results of Treatment*

Medical (Prolonged Rest, Postural Drainage and Symptomatic Treatment [32])			
Solitary abscesses (19)			
Cured	11, or 58%	89.6%	
Improved	6, or 31.6%		
Died	2, or 10.4%	1 patient dead in 6 hours after entrance; necropsy; 1 patient died of peritonitis following gastric fistula	
Bilateral monolobar abscesses (2)			
Cured	1, or 50%		
Died	1, or 50%		
Multiple abscesses (7). Died 7, or 100%			
Bronchopneumonia	2		
Gangrene	2		
Secondary to infected emboli from cardiac condition	1	Undiagnosed	2
Terminal to marked diabetes	1	Necropsies	5
Cause undetermined	1		
Malignant abscesses (4). Died 4, or 100%			
Necropsies	3		
Malignant nature of abscess unrecognized	2		
Surgical Treatment (3)			
Solitary abscesses (2)			
Pneumothorax followed by incision and drainage	1 improved,	50%	
Incision and drainage elsewhere	1 died,	50%	
Multiple abscesses (1)			
Artificial pneumothorax followed by empyema elsewhere	Died 100%		
Necropsy			
Total abscesses	35		
Improved or cured	19, or 54%		
Deaths	16, or 46%		
Necropsies	10, or 62.5%		

A study of the fatal cases, particularly those with multiple abscesses, raises the question as to whether or not these deaths could have been avoided with surgery. It must be admitted that conservative treatment in these cases was a complete failure. Would surgery have made any difference? Unfortunately one finds few reports in the literature of successful surgical treatment. A study of the published postoperative autopsy reports reveals the interesting fact that in many instances the presence of multiple abscesses was responsible for the surgical failure. Hedblom,[39] for instance, found five multiple abscesses in seven necropsies. Heuer and MacCready[40] found six in eleven necropsies. While an occasional case of improvement following drainage of the main abscess is recorded, it is the exception rather than the rule. One can conceive of lobectomy or Graham's[41] cautery pneumectomy in multiple abscesses limited to one or two lobes but obviously not in the bilateral multiple abscesses (six cases in the present series); first, because it is impossible to drain all abscesses, and, secondly, because many of the patients are generally in such poor condition that operative procedures in any form would only precipitate the end and are therefore prohibited. Lemon[42] says: "Acute multiple abscesses cannot drain and always cause death." Heuer[43] well paints the tragic picture of this disease: "Multiple lung abscesses are in number with single. They defeat in the great proportion of cases our best efforts at diagnosis, they resist our medical and surgical efforts at treatment and they contribute largely if not more largely to the mortality in lung abscesses."

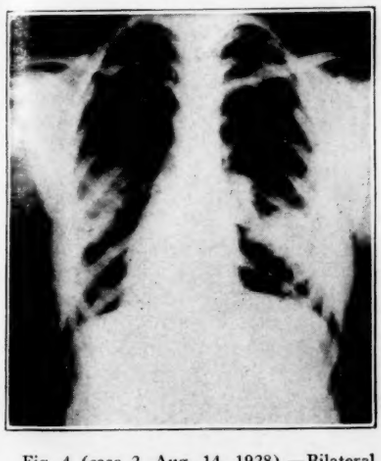


Fig. 4 (case 2, Aug. 14, 1928).—Bilateral pulmonary abscess at periphery of both lower lobes.

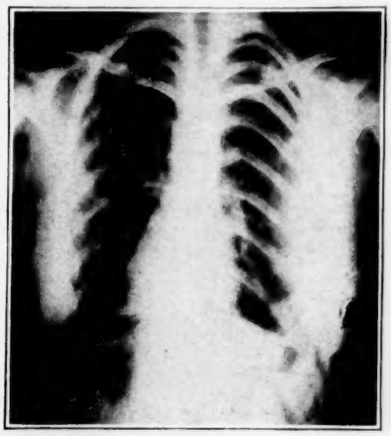


Fig. 5 (case 2, Nov. 29, 1928).—Appearance approximately ten weeks later, showing abscess healed. Patient has been working for more than a year without a recurrence of symptoms or signs of the abscesses.

In the present series a bilateral pulmonary abscess was cured with expectant treatment.

In general, it may be stated that in the acute and disseminated multiple abscesses little can be expected from any form of treatment.

CONCLUSIONS

The results obtained in this series and a review of the literature lead to the following conclusions:

1. All acute lung abscesses are primarily medical. This contention is supported not only by the results quoted, but also by the statements of Miller,[44] Lambert[45] and others that operation during the acute phase of abscess carries with it a mortality of from 65 to 70 per cent.

2. Acute single lung abscesses and some chronic abscesses are usually amenable to medical treatment alone.

3. Radical surgery is definitely indicated only in cases in which the patient does not get well after a reasonable period of conservative "management," in peripheral abscesses that do not drain well, in long standing chronic cases, or, occasionally, in multiple abscesses limited to one lobe.

TABLE 5.—*Duration of Disease*

	Average Duration of Symptoms Before Entrance	Average Hospital Stay	Duration of Disease
Cured or improved cases			
Acute and subacute	31 days	38 days	69 days
Chronic cases	180 days	100 days	280 days
Fatal cases			
Multiple and bilateral	23 days	19 days	Dead in 42 days

39. Hedblom, C. A.: Treatment of Nontuberculous Pulmonary Suppuration, Northwest Med. **23:** 1-8 (Jan.) 1924.
40. Heuer, G. J., and MacCready, P. M.: Lung Abscess, Arch. Surg. **6:** 337-342 (Jan., pt. 2) 1923.
41. Graham, E. A.: Cautery Pneumectomy for Chronic Suppuration of Lung, Arch. Surg. **10:** 392-418 (Jan., pt. 2) 1925.
42. Lemon, W. S.: Abscess of the Lung, Canad. M. A. J. **10:** 1079-1089 (Dec.) 1920.
43. Heuer, G. J.: Lung Abscess, Minnesota Med. **6:** 279-285 (May) 1923.
44. Miller, J. A.: Lung Abscess; Some Aspects of Etiology and Medical Treatment, Laryngoscope **39:** 211-214 (April) 1929.
45. Lambert, A. V. S.: Surgical Diagnosis and Treatments of Lung Abscess, Laryngoscope **39:** 224-227 (April) 1929.

4. Bilateral multiple abscesses present a virulent condition running a rather brief and stormy course leading to a fatal termination.

5. Early diagnosis and early medical treatment are the secrets of success in the cure of solitary lung abscesses.

6. As a final word, I believe that the results justify the concluding of this paper with a plea for the conservative treatment of lung abscesses.

University Club Building.

Clinical Notes, Suggestions and New Instruments

A URETERAL STONE DISLODGER

ROBERT W. MCKAY, M.D., CHARLOTTE, N. C.

A number of ureteral stone dislodgers and extractors have been devised in the past few years. In the majority of these, the device that traps the stone has made the caliber of the whole instrument so great that it is passed by the obstructing calculus with difficulty.

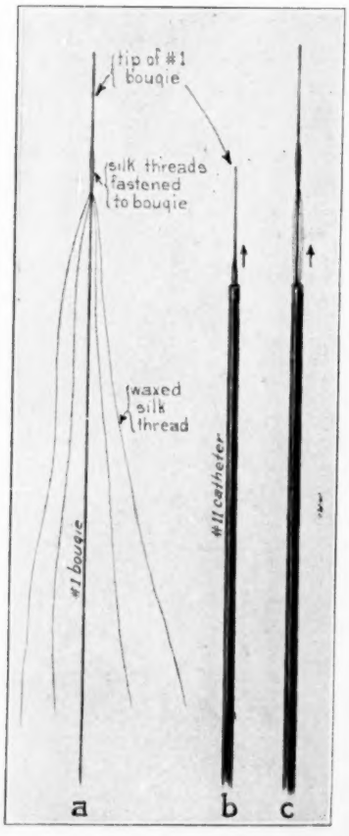


Fig. 1.—Elements of ureteral stone dislodger: *a*, the core of the instrument consists of a number 1 bougie. One and one-half inches from its tip the four wax threads are bound to the core by fine silk, making a slender spindle. *b*, The tip of the bougie and spindle are here seen projecting from the cut-off end of a number 11 catheter through which the instrument is passed to prevent the threads from becoming entangled. *c*, The spindle and threads are seen emerging from the tip of the cut-off catheter.

To secure an instrument with the smallest diameter possible, I designed the dislodger described here:

It consists of a number 1 or a 2 bougie. One and one-half inches from the tip of the bougie there are attached four stout threads of Japanese silk (tooth silk). These are made fast to the bougie core by very fine silk threads wrapped about their ends, as shown in figure 1. This attachment of the threads to the core marks the greatest diameter in the entire instrument. The point of attachment is spindle shaped so as to pass by the stone with the maximum of ease. After the threads have been bound to the core, the spindle should be shellacked to render it smooth.

The method of using the instrument is quite simple. The tip of a small bougie is passed beyond the calculus and the bougie is allowed to stay in position for twenty-four hours. Following this a number 7 catheter is inserted in the ureter past the obstructing calculus and also allowed to remain in situ for the same length of time. Immediately on removal of the latter, the instrument itself is thoroughly lubricated and the tip inserted beyond the stone. In order to facilitate its passage and to prevent the threads from being caught on the elevator of the cystoscope, it is passed through the lumen of a number 11 catheter which has been cut off. If the cut-off tip of the catheter is placed directly against the ureteral orifice, it greatly facilitates the passage of the instrument. After the obstruction has been passed, the cystoscope and the number 11 cut-off catheter are withdrawn from the bladder. The operator then pushes on the central core bougie and pulls downward simultaneously on the threads; this creates a pocket, as shown in figure 2. The threads and central core are then twisted and the stone is trapped; the instrument is then pulled downward very slowly and with frequent pauses. If the stone moves with difficulty it is advisable to allow three or four minutes to elapse before pulling down again on the instrument.

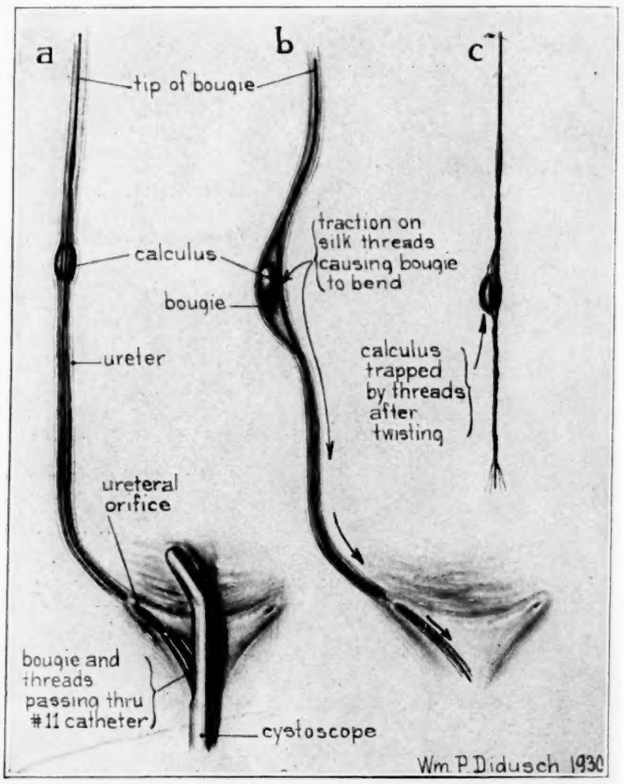


Fig. 2.—Method of using instrument: *a*, schematic representation of dislodger extending up the ureter past the stone. The cut-off catheter through which it is passed is seen elevated against the ureteral orifice. *b*, the result of pushing on the bougie and pulling on the threads. *c* the calculus, enmeshed by the twisted threads, is seen bound to the bougie.

Of course, the farther down the ureter the stone is, the easier will be its extraction. After it has been withdrawn into the bladder, its removal to the exterior is quite simple.

I intend to have the instrument commercially made and improved on by reducing to the smallest diameter the spindle where the threads are bound to the bougie.

Professional Building.

ASPERGILLUS INFECTION OF THE HAND*

JOHN T. MYERS, M.D.
AND
A. D. DUNN, M.D.
OMAHA

Organisms commonly considered nonpathogenic may at times show definite disease-producing properties. However, they are rare experiences. Even *Bacillus subtilis*, a ubiquitous saprophyte, has been reported as the cause of panophthalmitis by Silberschmidt and others.[1] Charrin and Nittis [2] showed that *B. subtilis* acquired considerable pathogenic power by repeated transfers on blood agar. It has long been known that saprophytic molds may manifest pathogenic properties. Certain mucors, penicillium

* From the Department of Bacteriology and Clinical Research, University of Nebraska College of Medicine.

1. Silberschmidt and Baenziger: Ber. d. Ophth. Gesellsch. Heidelberg, 1902, pp. 23, 217. Silberschmidt: Ann. de l'Inst. Pasteur **17**: 268-287, 1903. Kayser: Centralbl. bakt. Parasitenk., I, Orig. **33**: 241-246, 1902.
2. Charrin and Nittis: Compt. rend. Soc. de biol. **49**: 711-713, 1897.

and aspergillus have been frequently reported. Harmer and Jackes [3] reported *Aspergillus fumugatus* in pus from a maxillary sinus; MacFarlan,[4] aspergillus niger from a tongue lesion; and Lynch,[5] following bites of the red bug (leptus), or chigger. Panayotatou [6] isolated a variety of penicillium which is usually harmless from a tongue lesion; the organism was definitely pathogenic for mice but not for rabbits. As might be anticipated, many cases of fungus infection have been reported in which the organism was not definitely identified. Classification of the higher fungi is in a chaotic state and medical mycology lags far behind medical bacteriology. For example, Mitchell [7] reported the isolation from lesions on the hands of a laundress of a fungus which in culture formed both mycelia and double contoured refractile bodies resembling blastomycetes. He called the condition "erosio interdigitalis blastomycetica." Others have applied the name "erosio interdigitalis saccharomycetica" to the same condition. Kingery and Thienes [8] studied a number of cases of mycotic paronychia with dermatitis, apparently occurring only in people in the Pacific Northwest engaged in preparing fruit for canning. Locally it was called "fruit poisoning." Cultures revealed yeastlike organisms and mycelia. Intravenous injections produced a generalized infection in rabbits, and rubbing the organism into the skin produced a vesicular dermatitis. Realization of the possible pathogenic properties of saprophytes commonly considered nonpathogenic may occasionally lead to the solution of a baffling clinical problem, as in the following instance:

REPORT OF CASE

History.—J. E. H., a farmer, aged 37, consulted us, Jan. 13, 192[illegible] for an indolent lesion on the back of the right hand of two years' duration. There was nothing of significance in the past or family history of the patient.

Fig. 1.—Appearance of lesion before treatment.

Two years before, the patient had developed a "pimple" on his right thumb, which was lanced and which discharged pus. He attributed his trouble to husking corn before the "pimple" healed. The infection, which spread rapidly over the back of the hand, healed rapidly except in one area on the dorsum of the hand which refused to close completely under persistent and divers methods of treatment, such as radiation, antiseptic solutions, hot packing, and ointments. The lesion (fig. 1) presented itself as an ulcer with a crater about 15 mm. in diameter with an elevated indurated purplish border from 7 to 9 mm. wide. Minute pustules were visible along the edge of the ulcer from which a thick creamy pus could be expressed. Only a staphylococcus was obtained on blood agar cultures made from this pus. The floor of the ulcer was a deep red and was granular where not covered by a dirty, grayish exudate. Between the thumb and the active lesion several thin whitish scars were to be seen, the seat of healed lesions.

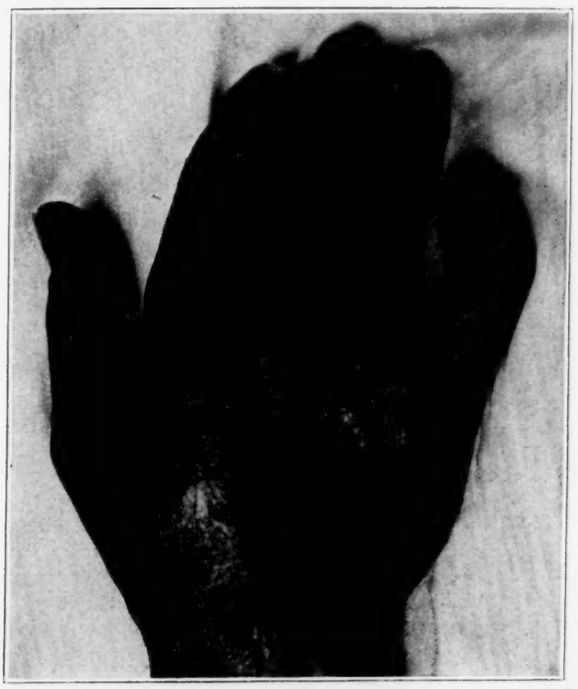


Fig. 2.—Two months after local treatment with copper solution and ointment.

The patient was well nourished, well developed, normal and muscular, and was in perfect physical condition. There were no other skin lesions. The urine examination was negative. The blood count was: red blood cells, 5,200,000; white blood cells, 8,000; polymorphonuclears, 66 per cent; small mononuclears, 24 per cent; large mononuclears, 6 per cent; eosinophils, 4 per cent. The Wassermann test was negative.

On the assumption of a staphylococcic infection, roentgen therapy and moist boric acid packs were administered intermittently for six weeks without improvement, when cultures on Sabouraud's medium yielded an aspergillus. The lesion was then treated with moist 1 per cent copper sulphate solution followed by an ointment containing 1 per cent copper subacetate. In two months the lesion was completely healed and it has remained so for four years (fig. 2).

The Organism.—When pus from the lesion was planted on Sabouraud's medium, an organism grew which corresponded to the description of *Aspergillus terrens* given by Thom: [9] Growth on Sabouraud's medium is at first yellowish and then velvety brown. There is no odor. The conidiophores are from 5 to 8 microns in diameter and from 50 to 150 microns in length, more or less flexuous, with walls smooth and colorless or nearly so up to 1 micron thick, septate with the apex enlarged to form

3. Harmer and Jackes: Proc. Roy. Med. Soc. **12:** 187-188, 1919.
4. MacFarlan, Douglas: Laryngoscope **34:** 720-722 (Sept.) 1924.
5. Lynch, K. M.: Aspergillus in Scalp Lesions Following Red Bug (Leptus) Bites, Arch. Dermat. & Syph. **7:** 599-602 (May) 1923.
6. Panayotatou, A.: Zentralbl. f. Bakteriol. Parasitenk., I, **101:** 231-235 (Jan. 3) 1927.
7. Mitchell, J. H.: Erosio Interdigitalis Blastomycetica, Arch. Dermat. & Syph. **6:** 675-679 (Dec.) 1922.
8. Kingery, L. B., and Thienes, C. H.: Mycotic Paronychia and Dermatitis; Hitherto Undescribed Condition Apparently Peculiar to Fruit Canners, Arch. Dermat. & Syph. **11:** 186-202 (Feb.) 1925.
9. Thom, Charles; and Church, Margaret V.: The Aspergilli, Baltimore, Williams & Wilkins Company, 1926, p. 150.

a vesicle about 12 to 18 microns in diameter, bearing sterigmas in two series on its domelike upper surface, the primary ones from 2 to 2.5 by 7 to 9 microns and the secondary from 2 to 2.5 by 5 to 7 microns, closely packed, the condiaglobose about 2.5 microns in diameter. It liquefies gelatin.

Suspensions of the spores of the organisms isolated from our case were injected into four mice, four rabbits, four guinea-pigs and one dog. In guinea-pigs, nodules appeared in from six to eight days which attained the size of a pea in from twelve to twenty days. Pustules developed and broke down, leaving ulcers similar to the one observed in the patient. Spontaneous healing began in from three to four weeks and the ulcers disappeared two or three weeks later. The phenomena in all the animals were similar but with some unimportant differences in time. The fungus was isolated in pure cultures from all the experimental lesions and on subcutaneous reinoculation again produced the same type of lesions. Intravenous inoculations were without apparent pathogenic effect.

CONCLUSIONS

An aspergillus was isolated from an indolent ulcerative hand lesion causing economic disability. Similar lesions were produced by subcutaneous inoculation of the organisms in laboratory animals. Rapid healing of the hand lesion, which had resisted varied treatments for two years, followed the application of 1 per cent copper sulphate solution alternating with 1 per cent copper subacetate ointment.

1530 Medical Arts Building.

TIC OF SALPINGOPALATINUS MUSCLE CAUSING SOUND AUDIBLE TO BYSTANDER

HENRY F. STOLL, M.D.
Visiting Physician to the Hartford Hospital
HARTFORD, CONN.

A mentally deficient man, aged 30, was brought to my office by his mother because of a "ticking" in his ears that at times interfered with sleep. Though very frail as an infant, the patient seemed to be well until he was 5 years old when, following a fright, he appeared to be afraid of everything and everybody. He did not do well in school and even with a tutor made little progress. He could not read and was jealous of those who could. He performed simple chores about the farm. In boyhood, he would have convulsions after a fright but he has not had these during recent years.

The head noises had been present for at least twelve years. A number of physicians had been consulted and the patient had received many treatments for "catarrh." The noises had been worse for the past three months. Up to this point the history was not remarkable, but the mother then said that she could hear the noise. Observing my look of incredulity, she said that anybody could hear it by listening near his ear.

To my astonishment, a distinct "ticking" sound, audible at 20 inches, came from the left ear of the patient. It was perfectly rhythmic and at first I thought it was due in some way to his circulation, but the rate was 132 a minute, while the heart was 104. The ticking was so loud and it so closely resembled the noise of the wood-tick—or the so-called death-tick—that I wondered if an insect might not be within the external auditory canal near the drum; but none was found. After a moment the rate changed to 120.

He had heard noises in the right ear occasionally but I could hear nothing on this side until my ear was in contact with the patient's ear, when I could detect a faint ticking, not always regular, and the rate was 108.

Both the pharyngeal and the laryngeal examinations were negative.

Believing that the sound was produced in the pharynx and transmitted along the eustachian tube to the ear, I referred him to Dr. William J. Dwyer for a nasopharyngoscopic examination. It was not possible to pass the nasopharyngoscope through the left nares, but when it was introduced through the right side a rhythmic contraction of the narrow muscle running along the anterior border of the left eustachian tube was observed; it was a vertical nystagmus and, with each contraction, the orifice of the eustachian tube could be seen to open and to close with relaxation. The opening and closing of the eustachian tube, presumably due to its being moistened by mucus, made a click identical to that made when suddenly separating the moistened lips. When the listener moved away, the muscular contraction ceased, only to return when some one again placed his ear near that of the patient.

The remainder of the examination was of no especial interest. The patient said that the noise often kept him awake at night but his mother subsequently ascertained that when he slept there was no clicking to be heard. There has been considerable speculation as to just what muscle was implicated. Dr. Harry B. Ferris, professor of anatomy at Yale University School of Medicine, was of the opinion that it was probably the anterior fibers of the levator palati that pass from the eustachian tube to the back of the hard palate, generally known as the salpingopalatinus muscle.

A few similar cases have been reported, one by Houser[1] in which the clicking sound was audible at 4 feet. There was no movement of the drum-head and it was not synchronous with the pulse. When a bougie was introduced 1.5 cm. into the tube, the sound ceased on that side only to return when the bougie was removed. By means of the nasopharyngoscope he also observed the contraction of the muscle connected with the anterior lip of the eustachian tube.

Perhaps the most remarkable case was seen by Coates.[2] In his patient, movements of the soft palate and drum occurred

A B

Appearance as seen through nasopharyngoscope: *A*, orifice of eustachian tube closed; salpingopalatinus muscle relaxed; *B*, salpingopalatinus muscle contracted and orifice of eustachian tube open.

with each click. Possibly it was due to the fact that the "drum" was implicated that the sound could be heard at a distance of 10 feet.

In Coates's case and in one seen by MacCuen Smith,[2] the introduction of a bougie did not stop the sound. Similar cases have been encountered from time to time, sometimes accompanied by organic brain trouble. The more recent work of Signorelli[3] implicated the substantia reticularis.

Under the title "Palatal and Laryngeal Nystagmus," Wilson[4] reported that a man, aged 53, had palatal nystagmus with a rate varying from 144 to 116. It was accompanied by a left superior constrictor, left posterior faucial pillar and the right superior constrictor; that of the palate was vertical, the other three horizontal. There was well marked twitching of the left arytenoid and of the left vocal cord synchronously with those of the palate. No mention is made, however, that any audible sounds were produced by these muscular contractions.

As with all tics, treatment is unsatisfactory. Tonsillectomy, tubal catheterization and bougienage were all tried in Houser's case without relief. An explanation as to how the noise is produced, with assurance that it is not of serious import, will probably be helpful in nervous patients. In my case, a small dose of bromide and phenobarbital appeared to have a beneficial effect.

179 Allyn Street.

---

1. Houser, K. M.: Clonic Spasm of the Muscles of the Eustachian Tubes, Arch. Otolaryng. **7**: 289 (March) 1928.
2. In discussion on Houser (footnote 1).
3. Quoted in the discussion on Wilson (footnote 4).
4. Wilson: Brain **51**, number 3, 1928.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

QUININE BISMUTH IODIDE.—A substance of variable composition containing between 18 and 20.1 per cent of bismuth, between 48.7 and 53.5 per cent of iodine; and quinine.

Actions and Uses.—Quinine bismuth iodide is proposed as a means of obtaining the systemic effect of bismuth in the treatment of Syphilis (See Bismuth Compounds, New and Nonofficial Remedies, 1930, p. 94).

Quinine bismuth iodide is a red powder that clings to most surfaces even when it is dry. It is insoluble in water and most organic solvents.

Treat about 0.5 Gm. of quinine bismuth iodide with 15 cc. of 20 per cent potassium hydroxide solution, warm, add 50 cc. of water, filter off the insoluble material, wash with water, dry at 100 C., extract with five 10 cc. portions of benzene, evaporate the benzene and dry the residue at 100 C.: the residue melts at 171 C. and gives the U.S.P. X tests for quinine. Ash the filter and undissolved precipitate in a quartz crucible: a yellow residue remains.

Treat about 0.1 Gm. of quinine bismuth iodide with about 1 cc. of nitric acid: the material blackens. Add 10 cc. of water and boil: violet colored vapors are given off.

Shake 0.030 Gm. of quinine bismuth iodide with 4 cc. of water, filter through a pledget of cotton, add 1 cc. of chloroform, 0.3 cc. each of diluted hydrochloric acid and ferric chloride solution, shake, allow to stand five minutes: the chloroform does not acquire a purple tinge *(iodides)*.

Shake 0.75 Gm. of quinine bismuth iodide with 4 cc. of potassium iodide solution, filter, add 1 cc. of chloroform to the filtrate, shake and allow to stand five minutes: the chloroform does not acquire a purple tinge *(iodine)*.

Transfer about 0.5 Gm. of quinine bismuth iodide, accurately weighed to a wide mouth weighing bottle and dry in a vacuum over sulphuric acid to constant weight: it loses not more than 1 per cent in weight. Transfer about 0.5 Gm. of the original, accurately weighed, to a 600 cc. beaker, add nitric acid until the color changes to black, add 100 cc. of water and boil until clear and almost colorless, add an excess of stronger ammonia water and 20 cc. of ammonium carbonate solution, allow to stand three hours, filter, wash the precipitate with water, ash, ignite in a weighed quartz crucible, add a few drops of nitric acid, evaporate and ignite to constant weight, cool in a desiccator and weigh: the bismuth oxide weighed is equivalent to not less than 18 per cent nor more than 20.08 per cent. Transfer about 0.12 Gm. of the original, accurately weighed, to a glass capsule, transfer this tube to a Carius tube containing 30 cc. of nitric acid and 0.2 Gm. of silver nitrate, seal and heat for seven hours at 210 C., cool, open the tube, transfer the contents to a large beaker and dilute to 500 cc.; allow to stand for four hours, filter through a Gooch crucible, wash with very dilute nitric acid (1 cc. diluted nitric acid in 50 cc. of water), dry at 100 C., cool in a desiccator and weigh: the silver iodide is equivalent to not less than 48.75 per cent nor more than 53.5 per cent iodine.

TARTRO-QUINIOBINE.—A suspension of quinine bismuth iodide and sodium potassium bismuthyl tartrate in olive oil, each cubic centimeter containing quinine bismuth iodide, 0.072 Gm., sodium potassium bismuthyl tartrate, 0.032 Gm., and camphor, 0.003 Gm.

Actions and Uses.—Tartro-quiniobine is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (See Bismuth Compounds, New and Nonofficial Remedies, 1930, p. 94); it is designed to secure both early action through the presence of the water-soluble sodium potassium bismuthyl tartrate, and prolonged action through the insoluble quinine bismuth iodide component of the mixture.

Dosage.—From 1 to 2 cc., administered intramuscularly twice or thrice weekly; 17 to 22 cc., representing a total amount of bismuth corresponding to about 0.6 Gm. of metallic bismuth, constituting a single course.

Manufactured by Chemisch-Pharmazeutische A. G., Bad Homburg, Frankfurt a. M., Germany (Spicer & Company, Glendale, Calif., distributor). No U. S. patent or trademark.

Tartro-Quiniobine Ampules, 2 cc.

Transfer 2 cc. of the tartro-quiniobine, well mixed, to a weighed Gooch crucible and percolate with petroleum benzine until all of the soluble part is extracted, dry in an oven at 50 C., cool in a desiccator over sulphuric acid and weigh: the residue weighs not more than 0.215 Gm., nor less than 0.20 Gm.

Place the crucible containing the residue just weighed in an 800 cc. beaker, add 5 cc. of nitric acid to the crucible, when the acid has percolated through, tip the crucible over, add 100 cc. of water, stir until the asbestos is washed out of the crucible, boil until the solution is nearly colorless, remove the crucible by means of a glass rod, wash the crucible adding the washings to the solution, filter the asbestos using a large filter paper, wash with very dilute nitric acid (20 cc. diluted nitric acid diluted to 100 cc.) until the bismuth is all in the solution, add an excess of stronger ammonia water and 20 cc. of ammonium carbonate solution, heat to boiling and allow to stand three hours, filter through ashless paper, ignite in a quartz crucible, cool, add a few drops of nitric acid, evaporate and then ignite, cool in a desiccator over sulphuric acid, weigh: the residue when calculated to bismuth is not more than 0.0615 Gm., nor less than 0.0585 Gm.

The quinine bismuth iodide in tartro-quiniobine conforms to the N. N. R. standards for this substance.

SODIUM POTASSIUM BISMUTHYL TARTRATE.—A basic sodium potassium bismuth tartrate containing from 40.75 to 41.25 per cent of bismuth.

Actions and Uses.—Sodium potassium bismuthyl tartrate is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (See Bismuth Compounds, New and Nonofficial Remedies, 1930, p. 94).

Sodium potassium bismuthyl tartrate is a white, heavy powder, soluble in water and insoluble in organic solvents.

During the ignition of about 0.1 Gm. of sodium potassium bismuthyl tartrate in a quartz crucible, a small globule of metallic bismuth forms that oxidizes on extended heating. The residue is yellow, alkaline to litmus, and effervesces with acids.

Transfer 0.1 Gm. of sodium potassium bismuthyl tartrate to a test tube, add 5 cc. of water and sufficient diluted hydrochloric acid to dissolve the precipitate first formed, add 0.5 cc. of barium chloride solution: no cloudiness appears within 2 minutes.

Transfer 0.1 Gm. of sodium potassium bismuthyl tartrate to a test tube, add 5 cc. of water and sufficient diluted nitric acid to dissolve the precipitate first formed, add 0.5 cc. of silver nitrate solution: no precipitate appears.

A sample of sodium potassium bismuthyl tartrate loses not more than 0.3 per cent of its weight when dried in a vacuum over sulphuric acid.

Transfer about 0.5 Gm. of sodium potassium bismuthyl tartrate, accurately weighed, to an Erlenmeyer flask, add 100 cc. of water, add diluted hydrochloric acid a drop at a time until the precipitate that forms redissolves, saturate with hydrogen sulphide, filter, wash successively with water, alcohol, chloroform and ether, dry at 100 C., cool in a desiccator, weigh: the bismuth sulphide weighed is equivalent to not less than 40.75 per cent nor more than 41.25 per cent.

PRELIMINARY REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

VENTRICULIN

Ventriculin was presented by Parke, Davis & Company for consideration by the Council as a preparation of desiccated stomach tissues useful in the treatment of pernicious anemia. This use of the stomach tissues apparently was originated in the Simpson Memorial Institute for Medical Research, Ann Arbor. The firm states that the work was done by Drs. Sturgis and Isaacs at the suggestion of Dr. E. A. Sharp of the firm's staff. The firm informed the Council: "Detailed description of the method of preparation will have to be deferred until we are satisfied that the best method of handling the material has been devised," thus indicating that the market supply may be of variable composition. In the information submitted to the Council, the firm stated that each lot of the product is standardized by clinical test at the Simpson Memorial Institute for Medical Research, but no protocols of such tests have been furnished the Council.

With regard to the recognition of the proprietary name "Ventriculin," Parke, Davis & Company argued that the name could be recognized under the rule of the Council which provides that the discoverer has the right to name a new therapeutic preparation or an old product for which new and important therapeutic use has been discovered. Leaving aside the fact that the product appears to be a common substance, namely, stomach tissue, the Council has received no direct statement from Drs. Sturgis and Isaacs granting permission to Parke, Davis & Company to apply the name "Ventriculin" to the product referred to in their publications. Although Parke, Davis & Company claim that a considerable amount of clinical evidence in favor of the use of the product, Ventriculin, in the treatment of pernicious anemia has developed, this evidence has not been presented to the Council in any form except the mere statement that such evidence exists.

The Council has postponed definite action in regard to the acceptance of Ventriculin to await (1) presentation by Parke, Davis & Company of a definitely standardized method of preparation for the product, (2) justification of the name, including a signed statement by Drs. Sturgis and Isaacs concerning the discovery of the use of stomach tissues in the treatment of pernicious anemia, and (3) presentation of adequate clinical evidence for the efficacy of the product in the treatment of pernicious anemia.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, SEPTEMBER 13, 1930

VITAMIN A IN DISEASE

The conception of the relationship of vitamin A to disease has been modified gradually since the discovery of this vitamin, and recent investigations have indicated that other changes may be anticipated. Stepp [1] observed in 1909 that mice failed to grow when on a diet consisting of bread and milk which had been extracted with alcohol-ether. About the same time Osborne and Mendel discovered a substance in butter fat in the absence of which growth would not occur. In 1912 McCollum confirmed Osborne and Mendel's observations and discovered the same substance in egg yolk fats, calling it "unidentified dietary factor fat-soluble-A." Funk coined the term "vitamin," and since then this substance has been known as vitamin A. At first it was known as the antirachitic and antixerophthalmic vitamin. Since the discovery of vitamin D, rickets has not been closely associated with vitamin A. Recently Wolbach and Howe,[2] feeding rats a diet deficient in vitamins A and D, found a metaplasia of epithelium of various parts of the respiratory tract, alimentary tract, eyes, para-ocular glands and the genito-urinary tract. Because xerophthalmia is rare in man, and because McCollum and his associates [3] found that xerophthalmia may result from dietetic abnormalities other than absence or deficiency of vitamin A, the anti-xerophthalmic factor of vitamin A has been pushed into the background and vitamin A has been considered only as growth promoting. Goldblatt and Benischek,[4] using a diet adequate in everything except vitamin A, found metaplasia of cuboidal, columnar and transitional epithelium to the squamous keratinizing type as described by Wolbach and Howe. Green and Mellanby [5] verified these results and in addition noted that pyogenic infections developed in many parts of the body. If the rats were fed vitamin A they promptly gained weight and the infections disappeared. In the control rats, pyogenic infections were not observed. The rats grew fairly well for a long time on a vitamin A deficiency diet. About two weeks before death they lost appetite and the weight decreased. At necropsy, pyogenic infections were found in the tongue, submaxillary gland, nasal sinuses, middle ear and genito-urinary tract. Enteritis, xerophthalmia and bronchopneumonia also were found. There was a marked loss of adipose tissue and a generalized visceral atrophy. Xerophthalmia occurred in 37 per cent of the cases, while abscess of the tongue was found in 72 per cent. These abscesses did not show a specific organism. Because of these results Green and Mellanby were led to consider vitamin A as a possible antiinfective agent. They tested this clinically in a small group of cases [6] of puerperal septicemia with suggestive results. In a control group of twenty-two cases the mortality was 92 per cent, while in the cases in which vitamin A was used in large amounts there were two deaths in eleven cases, or a mortality rate of 18 per cent. They found that vitamin A did not act like a bactericidal agent or like an antitoxin. Rather it seemed to act by building up the general body resistance. In the patients who recovered, the blood cultures remained positive from seven to fourteen days. Mellanby is using vitamin A in an outpatient prenatal group, but figures are not available at present on this series.

The experiments by Green and Mellanby seem to give clear-cut results and are well controlled. Mellanby has questioned the work of all other investigators except Goldblatt and Benischek on the ground that the diet used did not contain either vitamin D or vitamin A. Most observations show that rats do not grow properly on a vitamin A deficiency diet. Sherman and Burtis [7] found that rats grew more slowly on a low vitamin A diet. They also found infections in 75 per cent of the cases. Mellanby seems to be of the opinion that rats grow well enough until the infections overwhelm them. If this can be verified, the conception of vitamin A as a growth promoter may have to be changed. Mellanby's experiments indicate that xerophthalmia, when it occurs in vitamin A deficiency, is but a part of a generalized process of keratinization.

Mellanby and Green offer three possible explanations for their results in the animal experiments: (1) lowered resistance due to deficient diet; (2) production of a favorable medium for bacteria made by the obstruction of ducts by the keratinizing cells; (3) a combination of these factors. Their clinical results, however, may be justly questioned. Common clinical knowledge indicates that a mortality rate of 92 per cent in puerperal septicemia must mean that a large part of this group consisted of the intense fulminating type.

1. Stepp, cited by Eddy, W. H.: The Vitamin Manual, Baltimore, Williams and Wilkins Company, 1921.
2. Wolbach, S. B., and Howe, P. R.: J. Exper. Med. **42**: 753 (Dec.) 1925.
3. McCollum, E. V.; Simonds, Nina; and Becker, J. Ernestine: J. Biol. Chem. **53**: 313 (Aug.) 1922.
4. Goldblatt, Harry; and Benischek, Maria: J. Exper. Med. **46**: 699 (Nov.) 1927.
5. Green, H. N., and Mellanby, Edward: Brit. M. J. **2**: 691 (Oct. 20) 1928.
6. Mellanby, Edward; and Green, H. N.: Brit. M. J. **1**: 984 (June 1) 1929. Mellanby, Edward: Brit. M. J. **1**: 677 (April 12) 1930.
7. Sherman, H. C., and Burtis, M. P.: Proc. Soc. Exper. Biol. & Med. **25**: 649, 1928.

Mellanby admits that the cases in which vitamin A were used were not of the fulminating type. The mortality rate of patients living from seven to fourteen days with a positive blood culture is relatively low. Because Mellanby and Green have promising results in their animal work, vitamin A should be tried clinically by careful methods. A concentrated solution of vitamin A and vitamin D, and a preparation that is 150 times as rich as cod liver oil in vitamin A, were the substances used clinically. The value of vitamin A as an antiinfective agent can be judged only after it has been used extensively. Recently viosterol has come into vogue in the treatment and prevention of rickets. Because of its high vitamin D content it should be more valuable than cod liver oil, but in certain cases cod liver oil has seemed to be more curative than viosterol. As has been suggested,[8] the large amount of vitamin A present in cod liver oil may be the reason. It may then be necessary to go back to the original conception of vitamin A as the antirachitic factor.

THE EFFICIENCY OF HUMAN MUSCLES

A distinguished American physiologist has recently reported the results of painstaking investigations that demonstrate clearly how little energy is consumed, in terms of requisite food fuel, during the progress of an hour's intensive intellectual effort. The added calory need for such an effort does not exceed the contribution supplied by a single oyster cracker or half a peanut. In striking contrast with this is the demand for fuel created by the muscular work of man. The production of 600 calories an hour is probably in the neighborhood of the highest possible maximum of human physical capacity for sustained effort.[9] This is true regardless of the type of work done. It has been exemplified by a champion bicycle rider, a long-distance runner, an expert mountain climber and a capable swimmer. It is furthermore important to remember that by a reduction of body weight one may economize in the amount of energy necessary for the basal metabolism; one may economize in the quantity of food fuel necessary to move the lesser body weight; but if a given amount of work is to be done it can be accomplished only at the expense of a definite quantity of energy, irrespective of the body weight.[9]

The body is often compared to a steam engine in respect to the manifestations of energy and work. Both produce waste heat. As the situation has recently been summarized,[10] an ordinary locomotive wastes about 96 per cent of its available energy as heat, only 4 per cent being represented as work. In the best triple extension steam engine, the work done rises to 12.5 per cent of the total energy. In man, from 20 to 28 per cent of the energy liberated during muscular contraction appears as work. Thus, muscle is more economical than the best steam engines; but the muscle has the great advantage over any engine that the heat which it produces is not wasted but is used for keeping up the body temperature, the fall of which below a certain point would lead to death, not only of the muscles but of the body generally.

It is sometimes disappointing to the student of man to find that the human mechanism is not capable of even better performance from a mechanical and energetic standpoint. There have been records of human muscular efficiency reaching 33 per cent of the energy involved; but these figures are unique. Sprinting represents an extreme effort that cannot be continued long. Fenn,[11] at the University of Rochester, N. Y., has recently ascertained that the rate of energy expenditure while running at a maximum speed is about 13 horse power for an average man. From measurements on isolated muscles as well as from calculations on sprinters, it may be concluded that about 40 per cent of this energy was expended during the sprint in the "initial" or anaerobic phase of muscle contraction, the remainder representing the inefficiency of recovery.

According to the Rochester physiologist, an average sprinter is incurring an oxygen debt at the rate of 13 horse power while he is turning out mechanical work at the rate of 2.95 horse power, or with an efficiency of 22.7 per cent. This includes work against gravity (0.1 horse power), changes in velocity (0.5 horse power), acceleration of the limbs (0.68 horse power), and deceleration of the limbs (0.67 horse power). It excludes contractions of facial and body muscles, sidewise movements of the body, and work against viscosity or internal friction. The mere mention of the incidental yet inevitable problem of the heat generated as a by-product of such vigorous muscular activities will start a train of thought from which perspiration, respiration and coincident discomforts cannot easily be dismissed.

CERTAIN PUBLIC HEALTH PROBLEMS IN BRUCELLIASIS

Much is being written today on the public health aspects of the undulant fever problem. A recently published bulletin of the California Department of Public Health[12] on this subject, prepared by the University of California committee for the study of this disease, is timely. It covers fully the history, the principal clinical characteristics, the epidemiology and the control measures for undulant fever.

The epidemiologic feature carries the following significant statements as to infection from raw milk: "Raw milk from goats or cows should not be directly blamed unless laboratory data are obtained as the

8. Vitamin D in Tuberculosis, editorial, J. A. M. A. **94**: 414 (Feb. 8) 1930.
9. Lusk, Graham: The Elements of the Science of Nutrition, Philadelphia, W. B. Saunders Company, 1928.
10. Halliburton, W. D., and McDowall, R. J. S.: Handbook of Physiology, Philadelphia, P. Blakiston's Son & Co., 1929.
11. Fenn, W. O.: Frictional and Kinetic Factors in the Work of Sprint Running, Am. J. Physiol. **92**: 583 (April) 1930.
12. Special Bull. 50, California Department of Public Health, 1930.

shedding of organisms in the milk or the extent of the infection in the herd determined by agglutination tests or by history of recent abortions in the herd or the recent use of live organism abortus vaccines, or by positive results from direct inoculation of guinea-pigs of centrifugalized specimens of pooled milk samples. Any assumption that infected raw milk is the causative factor should be carefully scrutinized and all other possible avenues closed. It is possible, however, that continuous ingestion of small numbers of abortus organisms of all types may lead to mild or unrecognized cases." The measures suggested for control of the disease are:

1. The reactors are removed from the herds, and either slaughtered or kept on an isolated farm. The milk when properly pasteurized at not less than between 140 and 145 F. for thirty minutes and under supervision can safely be sold for public consumption. In the home the raw milk is preferably boiled for five minutes.

2. The nonreacting animals are kept in the milking line and continue to furnish raw milk. No animal should be added to this lot until it has passed two serological tests for *Brucella*. The interval between the tests may range from two to six weeks. Additional tests of the entire nonreacting group should be continued at not more than six-month intervals in order to determine if all the reactors have been eliminated.

Apparently, then, the first step necessary to reduce the disease in cattle is to raise healthy heifer calves, for there is an ever increasing public health demand for healthy cattle. All feed must be free from all contaminating discharges. In this connection, Haring [13] concludes that: "Calves are not susceptible to abortion disease until they reach breeding age and may be fed on the raw milk of abortion-infected cows without predisposing them to infection after maturity. The abortion bacilli which they may swallow with the milk eventually die or are eliminated in the excretions, so that, soon after weaning, heifers are usually free from abortion infection. As they approach maturity, they become increasingly susceptible and are likely to become infected and abort during their first pregnancy if they come in close contact with infected cows."

This analogy may be applied in part to human beings, since the incidence of the disease in the young is not significant. Pasteurization of milk, however, so often stressed as a prime control necessity, is admittedly dependent on the thermal death point of the *Brucella* group of organisms or any other contaminant. Arnold [14] found that forty minutes at 140 F. was required to kill the porcine strain of *Brucella abortus*. Certainly there is every indication for further work with a large number and variety of these strains. Perhaps this may lead to the establishment of a definite and accepted temperature for pasteurization with proper safety factor range and the recognition that the extraordinarily important commercial pasteurization must be rid of its defects and remain always under expert technical supervision.

13. Haring, C. M.: California Agricultural Extension Service Circular 33, October, 1929.
14. Arnold, Lloyd: Illinois Health Messenger, Jan. 1, 1930; Am. J. Pub. Health **20**: 160 (Feb.) 1930.

THE LUNGS AND FAT METABOLISM

Whereas most of the products of digestion in the alimentary tract are absorbed into the capillaries leading to the portal system so that they pass directly to the body's largest biochemical laboratory, the liver, fats experience a different fate. They are absorbed from the intestine by the lacteals and are thus conveyed through the thoracic duct to veins at the base of the neck, whence they proceed through the heart and pulmonary circulation before they reach the liver and other organs. The difference between the two routes means, as Leathes and Raper [1] point out, that fat absorbed by the blood will go through the liver before it reaches other tissues, and that which goes by the thoracic duct will be distributed equally to all parts. The readiness with which the liver in certain circumstances takes up fat may, they add, make the lacteal route advantageous when fat is to be laid by in adipose tissue.

A few investigators, mostly French, appear of late to have considered the possibility that the lungs may play an important part in the metabolism of fat. Recent writers [2] who have reviewed the statements in physiologic literature suggest that from a teleologic point of view the assumption is not without merit, since a larger proportion of the fat is absorbed by the lacteals, and before it reaches the general circulation it has to traverse the thoracic duct and the pulmonary circulation. Few writers seem to have accepted these views, for the possibility seems not to be mentioned in the textbooks and monographs on fats.

The evidence that the lungs play a part in the metabolism of fat consists of observations that large quantities of fat accumulate in the lungs when finely divided emulsions of fat are injected intravenously. Markowitz and Mann [2] of the Mayo Foundation have recently subjected the question to more conclusive investigation. They have found that the fat content of the lungs is remarkably constant despite large variations in the amounts of fat undergoing absorption. However, when fat emulsions were injected directly into the circulation, despite the fact that the particles were not more than 4 microns in diameter and thus smaller than erythrocytes, large masses of fat were present in the capillaries of the lung and in the alveolar cells, and free fat was present in the alveoli and in the bronchi. The Mayo Foundation investigators have not been able to demonstrate any significant increase of fat in the lung following the absorption of as much as 8 Gm. of butter-fat for each kilogram of body weight over a course of four hours. Their experiments have shown that the blood of the pulmonary artery contained more fat than blood from the femoral artery only when an emulsion of fat was injected intravenously. Otherwise, the amounts represented excellent duplicates. It would appear, they conclude, that the particles of the fat emulsion become

1. Leathes, J. B., and Raper, H. S.: The Fats, London, Longmans, Green & Co., 1925.
2. Markowitz, Cecile; and Mann, F. C.: The Rôle of the Lung in the Metabolism of Fat, Am. J. Physiol. **93**: 521 (June) 1930.

fused to larger particles in the blood stream and give rise to fat embolism of the lungs. It was not possible to demonstrate that the content of fat in the lung increased following the intravenous injection of citrated chyle obtained after feeding fat. Thus the supposition that the lungs promote the conversion of fat no longer finds support.

Current Comment

THE NEGLECT OF PHARMACOLOGY

A survey of American medical schools is likely to give one a distinct impression that pharmacology has been somewhat neglected as a medical discipline in this country. In some of the universities it is relegated to a "joint department," usually in company with biochemistry, just as the latter was submerged under the label of physiology for many years and so remains in some of the European centers. In an informative and stimulating presidential address delivered at the pharmacopeial convention in Washington a few weeks ago, Reid Hunt [1] of Harvard University Medical School referred to the opportunities that lie before the pharmacologic investigator of today and deplored the lack of adequate support that his science has received in the United States. To those who are wont to assume that empiricism has been responsible for most of the drugs with specific action now in use and who recall that mercury, quinine, opium alkaloids and other potent therapeutic agents antedate modern scientific ventures comes the reminder that pharmacology has made malaria, amebic dysentery, syphilis, yaws and other diseases yield to synthetic drugs of the last half century. Hunt reminds us that among the important therapeutic agents added in this period to the pharmacopeia are the arsphenamines, every effective hypnotic, analgesics such as acetanilid, the salicylates, the nitrites, bromides, the antitoxins, and nearly all antiseptics. He adds the unpleasant reminder that the United States has made scarcely a single original contribution to this list. Hunt is responsible for the allegation that "at the present time, there is scarcely a university pharmacological laboratory in the United States the equal of a number in Germany forty or even fifty years ago." Part of the indifference to pharmacology is perhaps attributable to the comparative "therapeutic nihilism" of the present generation of physicians. They bank largely on the *vis medicatrix naturae,* the healing power of nature that is a saving grace for many cults. Nature, Hunt remarks, is certainly not very active in healing cancer, syphilis, tetanus, amebic dysentery, yaws, diabetes, myxedema, hookworm and other diseases, many of which may now be relieved or cured by drugs. He cites the famous remark of Benjamin Rush that nature should be turned outdoors and efficient art substituted for her. Thousands of new organic compounds have been prepared in recent years; hundreds of them deserve pharmacologic investigation. Surely here is an immediate challenge demanding the earnest support of all who are interested in medical progress. It calls for more than half-hearted tolerance and indifferent attitudes. Promising opportunities beckon to the talented investigator endowed with perserverance and patience.

1. Hunt, Reid: Promotion of Medicine and Pharmacy, Science **72**: 49 (July 18) 1930.

WHEN ANTIVIVISECTORS FLOURISH

In an address delivered at the opening of the Department of Research in Animal Genetics at Edinburgh University, Sir Edward Sharpey-Schafer [1] drew attention to the serious handicap under which British hospitals are working as a result of the legal restrictions on animal experimentation. "Even when the hospital possesses a well equipped laboratory, experiments upon living animals, whether for diagnostic purposes or not, are usually barred by the authorities responsible for the administration of the hospital." It is not that legal permission is unobtainable but that an application for permission would be noted by the fanatical antivivisectors, who would surely do their best thereafter to damage the subscription lists of the hospital. Samples of blood, of morbid growths or of urine destined for animal inoculation must therefore be sent out of the building. The Animal Research Institute, although designed for pure research, is actually the only institution in the country which undertakes the Aschheim-Zondek test for pregnancy. The law lays down no restriction on poisoning, drowning or trapping vermin, yet the hypodermic injection of a mouse is a matter for a deluge of antivivisectional tears. Thus organized ignorance triumphs over humanity and common sense.

THE MANAGEMENT OF OPIUM ADDICTION

Estimates as to the number of persons in the United States who are addicted to the use of opium and its alkaloidal derivatives have varied widely. The opinion of certain government experts has restricted the number to 150,000, though there are not a few students of the subject who regard this figure as far too low. Unfortunately, the methods for securing a "census" of the addicts are far from dependable. In any event, addiction remains a truly serious problem for medical consideration. Many of the so-called specific cures have been given fair trials by critically minded observers, but the results have been consistently unconvincing. This applies to rationally conceived proposals as well as to exploited products like "Narcosan" or the alleged secret Kahle treatment discussed in the German medical press. The upshot of the situation today therefore seems to justify the conclusion of a British reviewer [2] who states that it is now realized more thoroughly than ever before that the major problem is not to free the addict from his drug but to keep him free. In other words, "the best cure of all for addiction is not to be an addict." THE JOURNAL [3] has previously referred to the extensive studies on the physiologic fitness of most habitués by Light and his collaborators in Philadelphia. They pointed out that morphine addiction is

1. Sharpey-Schafer, E. A.: Research in Animal Genetics, Brit. M. J. **2**: 30 (July 5) 1930.
2. Adams, E. W.: A Further Summary of Recent Literature on Drug Addiction, Bull. Hyg. **5**: 429 (June) 1930.
3. Light, A. B.: Opium Addiction: XI. General Summary, Arch. Int. Med. **44**: 870 (Dec.) 1929. Some Aspects of Opium Addiction, editorial, J. A. M. A. **94**: 340 (Feb. 1) 1930.

not characterized by physical deterioration or impairment of physical fitness aside from the addiction per se. Herein lies the hope that rehabilitation by any process may be expected to be satisfactory so far as the physiologic functions are concerned. The mental and psychologic problems are not yet so easily disposed of, particularly when unwholesome sociological factors are involved. Relapse is common to all methods of treatment. Admitting this, the question as to whether the withdrawal of the alkaloid should be gradual rather than abrupt may now be discussed in the light of many reports. According to the latest reviewer, British opinion is, with a few notable exceptions, in favor of a reduction treatment as the routine method of cure. There appears, according to Adams, to be little evidence that relapse is more common with such treatment than with sudden withdrawal. Indeed, as he points out further, it appears unjustifiable to inflict unnecessary suffering by employing the harsher methods, except in unusual cases.

BACTERIAL GROWTH STIMULANTS IN IMMUNE SERUM

Serologic research has been so largely concerned with therapeutic antibodies that the possible occurrence of specific factors in serum with exactly the opposite effect has been largely overlooked. Infection-favoring substances, of course, were inconsistent with the older immunology, which assumed that every specific factor in serum is a purposeful defensive internal secretion. To the newer immunology,[1] however, serum factors cooperating with pathogenic micro-organisms are not inconceivable. The observation of Mesnil in 1898 that specific micro-organisms multiply in the serum of animals artificially immunized against certain infections was of little current interest, since it was readily interpreted as microbic growth in the presence of an insufficient or sub-bacteriostatic concentration of specific protective antibodies. Even the later demonstration by Bridré and Jouan in 1914, that specific micro-organisms not only grow in nutrient broth containing from 10 to 20 per cent immune serum but multiply six times more rapidly in such mixtures than in control mixtures with normal serum, excited no interest. It was assumed that the immune serum contained a collateral specific precipitin for some growth-inhibiting factor in nutrient broth, the removal of which factor made the broth a more favorable medium for bacterial growth. The Bridré-Jouan phenomenon has been analyzed recently by Nicolle and Césari [2] of the Pasteur Institute, Paris, who report convincing evidence that the observed acceleration of bacterial growth is not a pseudophenomenon due to removal of an unfavorable factor in nutrient broth but a real growth stimulation, a specific serum factor favoring the nutrition of homologous micro-organisms, thus accelerating their rate of multiplication. To explain this acceleration, without too great an insult to the older immunology, Nicolle and Césari assume that specific immune serums contain "retained dissociation products of injected micro-organisms acting as specific growth stimulants." Whether or not these postulated "antitherapeutic antibodies" are operative in passively immunized animals has not yet been determined.

1. Manwaring, W. H.: A Critique of the Ehrlich Theory, with an Outline of the Enzyme Theory of Antibody Formation, in Jordan and Falk: The Newer Knowledge of Bacteriology and Immunology, University of Chicago Press, 1928, chapter 81, p. 1078.

2. Nicolle, M., and Césari, E.: Influence des immunsérums specifiques sur la culture des microbes pathogènes, Ann. de l'Inst. Pasteur **40**: 43 (Jan.) 1926.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, Tuesday and Saturday over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

September 15. A Doctor Looks at Cleanliness and Health.
September 16. The Doubting Folly.
September 20. Sleeplessness.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily from 1 to 1:05 p. m., daylight saving time.

The program for the week is as follows:

September 15. Sneezes Are Seldom Above Suspicion.
September 16. Clean Classrooms.
September 17. Health Hazards of Heart Disease.
September 18. Shattering That Shingles Superstition.
September 19. Mouth Cancer and Radium.
September 20. Resuscitating the Dead.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Summer Health Schools. — California health authorities estimated that the nine summer health schools in session during July and August definitely improved the status of tuberculosis in California. The tuberculosis contact child is stated to present a grave problem in Los Angeles County. A recent survey of health conditions in the county showed that there were 6,000 active tuberculosis cases in the county and approximately 18,000 contacts, about 33 per cent of whom were children. The summer health schools were proposed to meet the problems of the below par child and to provide definite health supervision of the tuberculosis contact child. The child health project was carried on jointly by the Los Angeles County Health Department and the Los Angeles County Tuberculosis and Health Association. Enrolment in each school was limited to thirty children, who were selected before the close of the public schools. Physical examinations were given by the child hygiene physician and the maternal and child hygiene division of the county health department. The group included tuberculosis contacts and malnourished and convalescent children, but no child actively ill with tuberculosis was admitted. The age group was 6 to 10 years inclusive.

New Health Center at Alhambra.—The latest building of the chain of health centers, in Los Angeles County, was opened at Alhambra, August 15. It will serve a population of approximately 130,000 people residing in Alhambra, San Gabriel, El Monte, Puente, Baldwin Park, Monterey Park, Lamanda Park and Altadena, in addition to a large area in the San Gabriel Valley. The building will house an emergency hospital section, clinics for cardiac, metabolic, tuberculous, chest and well baby cases, and a laboratory, including roentgen, dental and physical therapy units. The Alhambra district health center is a unit in the Los Angeles County Health Department whose division of bacteriology of the bureau of laboratories is decentralized into eleven branches. Dr. Samuel J. Stewart, district health officer, is director of the Alhambra Health and Welfare Center. The diagnostic and educational services are free regardless of financial or social status, but treatment clinics

are restricted to the indigent sick. The Los Angeles County Health Department functions in an area of 3,400 square miles under the direction of Dr. John L. Pomeroy.

Warrants Out for "Eye Specialists."—War has been declared by the state board of medical examiners against "graduates" of a swindling school located somewhere in the East, who recently flooded the state. Sufferers from eye disease have been victimized for thousands of dollars. The racket worked by these "specialists" consists of engaging as surgeons men with disarming personalities and educated at the "University" in a convincing line of professional patter. They are then assigned to territories previously platted by espionage operatives hired to ascertain the financial standing of prospective patients, their age, amount of education and worldly knowledge. The "doctor" alarms the patient by telling him he has cataracts and that he will soon become blind unless something is done. The patient usually submits. Treatment consists of dropping so-called "radium water" into the eyes and pinching the lids with forceps. Tiny fragments of flesh colored rubber dropped between the lids are then removed and the patient is told these are the removed cataracts. Checks varying from $500 to $2,000 are forced out of the victims, and their eyes are bandaged. The swindlers hurry to the bank to cash the check. The board of medical examiners have affidavits from victims who have paid sums of $1,000, $1,750, $812 and $2,200, respectively. The department exhibited at the California State Fair recently enlarged photographs of the swindlers and their various aliases, their finger prints and the affidavits of the victims. Californians, especially residents of rural districts, are warned not to submit to casual operations by canvassing surgeons, and to inform the police the moment they are importuned.

GEORGIA

License Reinstated.—The license of Dr. William A. Starnes, Atlanta, was reinstated, June 11. Dr. Starnes' license had been revoked, Oct. 9, 1929, because of conviction in federal courts for violation of the Harrison Narcotic Law.

Society News.—The annual session of the Eighth District Medical Society at Washington, August 13, was addressed, among others, by Drs. Paul L. Holliday, Athens, on "Pelvic Physiology"; John A. Hunnicut, Jr., Athens, "Prenatal Care," and William H. Cabaniss, Athens, "Importance of Early Care of Eye Injuries." The subjects of "Typhoid Fever Complicated by Intestinal Perforation" and "Typhoid Carriers" were presented by Drs. Benager C. Teasley, Hartwell, and Thomas H. Johnston, Athens, respectively.——The Fulton County Medical Society was addressed, September 4, by Drs. Murdock S. Equen, Atlanta, on "Foreign Bodies in Food and Air Passages" (moving pictures), and William Willis Anderson, "Alimentary Anemia."

Itinerant Tuberculosis Clinic.—An itinerant tuberculosis clinic service will be offered to the counties of Georgia this fall under the auspices of the state tuberculosis sanatorium at Alto, it is reported. The clinic is being established in an effort to reduce the more than 3,000 deaths annually from tuberculosis in Georgia. It is estimated that for every death from this disease there are ten existing cases. Services of the clinic will be offered first to the rural counties in the state that have organized health units under the Ellis health law. The work will be confined chiefly to diagnosis. The family physician will be asked to the conference and the case turned over to him for treatment. In cases in which services of a physician have not been obtained owing to lack of funds, arrangements will be made by the county board of health and the county medical association to provide treatment.

ILLINOIS

Personal.—Howard J. Shaughnessy, Ph.D., Chicago, has been appointed chief of diagnostic and research laboratories of the state department of public health to succeed Thomas G. Hull, Ph.D., who resigned last spring. In 1926 Dr. Shaughnessy was an instructor in the department of bacteriology, pathology and public health in the Yale University School of Medicine and since 1927 has been an instructor in the University of Chicago, in charge of research investigation on infantile paralysis.

Chicago

Society News.—Dr. Robert W. Keeton addressed the Sangamon County Medical Society, September 4, on colitis.——Dr. Nathan S. Davis III talked on "Diagnosis and Treatment of Heart Disease" before the Rock Island County Medical Society, September 9.——Dr. Edmund Andrews will address the Alexander County Medical Society, September 19, on "Diagnosis and Treatment of Gallbladder Diseases."

Laboratories for Research in Heart Disease.—The board of trustees of the Michael Reese Hospital announces the opening of a group of laboratories designed for research in diseases of the heart. The laboratories were established primarily through a gift of $20,000 outright and the creation of a trust fund of approximately $120,000 by Mrs. Fannie Wedeles in memory of her husband, the late Emil Wedeles. Contributions by Milton L. Strauss, Morris Vehon, Harry D. Oppenheimer, Frederick K. Babson and Theodore A. Weil have aided in the establishment and maintenance of the new laboratories. The investigation of angina pectoris and coronary sclerosis and thrombosis will be the first problems studied. In connection with the laboratories has been established a cardiac clinic which employs two full time cardiac social workers. Beds for the study of heart patients have been set aside in the general hospital wards. A full time medical director and a staff coordinate the various aspects of this project and the work of the staff of Michael Reese Hospital. One of the activities of the heart group is the giving of graduate courses for physicians. The work of the clinic is designed to assist in the countrywide movement for the prevention and control of heart disease, from which there has been a constantly increasing death rate.

MINNESOTA

Personal.—At the recent annual meeting of the Minnesota State Golf Association, Dr. William P. Finney, Jr., Rochester, was elected president.——Dr. Leon J. Tiber, St. Paul, recently left for Los Angeles, where he is reported to have accepted a position as professor of obstetrics and gynecology in the University of Southern California School of Medicine.

Northern Minnesota Medical Association.—This society will hold its annual meeting, September 19-20, at Moorhead. Talks will be given by Drs. William Boyd, professor of pathology, University of Manitoba Faculty of Medicine, Winnipeg, on "Rheumatic Disease of the Heart"; Philip F. Eckman, Duluth, "The Classification of Purpura"; Walter C. Alvarez, Rochester, "Methods of Diagnosing Gastro-Intestinal Disease from a Careful History of the Symptoms"; Edward T. Evans, Minneapolis, "Orthopedic Care of Poliomyelitis"; Emil S. Geist, Minneapolis, "Bohler's Treatment of Fracture"; Edward W. Humphrey, Moorhead, "Open Treatment of Fractures"; Berton J. Branton, Willmar, "Ectopic Gestation"; William H. Long, Fargo, "Consideration in the Management of Secondary Anemia"; Frederic E. B. Foley, St. Paul, "Plastic Operation of the Real Pelvis for Hydronephrosis"; Ragnvald S. Ylvisaker, Fergus Falls, "Functional Disturbances of the Bowels"; William F. Baillie, Fargo, N. D., "Some Indications of Urologic Examinations," and Olin W. Rowe, Duluth, and Henry W. F. Woltman, Rochester, subjects not announced. Dr. Henry C. Cooney, Princeton, will give the annual presidential address at the banquet, September 19.

MISSOURI

Society News.—The Harrison, Gentry and Worth County medical societies were addressed at a joint meeting, July 18, at Bethany by Drs. Edward A. Gummig, St. Joseph, on "Carcinoma of the Lung," and Dar D. Stofer, Kansas City, "Allergy."

Hospital News.—Dedication services at the new De Paul Hospital, Kingshighway and Wabada streets, St. Louis, were held, August 15. The hospital is the outgrowth of a small log house containing two rooms and a kitchen, where in 1828 the Sisters of Charity began the first hospital work done in Missouri.

Personal.—Dr. Walter A. German has been appointed to succeed Dr. George C. Lee, resigned, as superintendent of the Kansas City Tuberculosis Hospital, Leeds. Dr. German was formerly in charge of the tuberculosis section of the veterans' bureau in Kansas City.——Dr. Robert F. Hyland, St. Louis, recently completed twenty years of service as chief surgeon of the St. Louis Public Service Company.——Dr. Benjamin F. Carr, Polo, was honored, July 31, at a luncheon given by the Caldwell County Medical Society, celebrating the completion of fifty years in the practice of medicine.

NEBRASKA

Society News.—The Madison Five Counties Medical Society was addressed, August 5, at Tilden by Drs. Ernest L. MacQuiddy, Omaha, on allergies, and Waldron A. Cassidy, Omaha, "Recent Improvements in the Diagnosis of Chronic Sinusitis"; Drs. Charles C. Barr and Roy P. Allerton, Tilden, presented a case of situs inversus occurring in identical twins.

—— The Omaha-Douglas County Medical Society will be addressed, September 23, by Drs. Ephraim Korol, Hines, Ill., on atelectasis and emphysema, and John J. Keegan, facial neuralgia; the society will be addressed, October 6, by Dr. William S. Baer, Baltimore, on bone tumors, and John Lovett Morse, Boston, pediatric diagnosis.

NEW YORK

Personal.—A reception was recently tendered Dr. Marshall Orlando Terry at Utica, founder of the Memorial Hospital, and surgeon in chief from 1895 to 1905. He now resides at Coronado, Calif.

New York City

Orthopedic Lecture Established.—The Hospital for Joint Diseases of the United Hospital Fund group has announced the establishment of a lectureship at the hospital, to be known as the Sir Robert Jones Lecture, in honor of the Liverpool orthopedic surgeon. The first lecture will be given, October 18, by Dr. Willis C. Campbell, Memphis, Tenn., on "The Physiology of Arthroplasty." The purpose of the lecture is to deepen interest in orthopedic surgery and to diffuse knowledge of recent advances in the science. Sir Robert Jones was the director of orthopedic surgery in the British forces during the World War. Dr. Campbell is president of the American Orthopedic Association and professor of orthopedic surgery at the University of Tennessee College of Medicine.

Autumn Clinical Lectures.—The fall series of practical lectures, given under the auspices of the clinical committee of the Medical Society of the County of Kings, will begin, October 3. The speakers will be, October 10, Drs. George I. Swetlow, "Pain: Its Diagnostic Significance; Its Treatment by Alcohol Nerve Block"; October 17, Walter C. Alvarez, Rochester, Minn., "Physiologic Knowledge Applied to Treatment of Gastro-Intestinal Diseases"; October 24, Robert S. McBirney, "Some Phases of Industrial Medicine"; October 31, Charles Saul Danzer, "Arteriosclerosis: Some Phases of the Newer Knowledge Applicable in General Practice"; November 7, Murray B. Gordon, "Endocrine Diseases and Disorders in Children"; November 14, Robert A. Cooke, "Allergic Conditions Encountered in General Practice"; November 21, John Sturdivant Read, "Sterility in the Male"; November 21, "Sterility in the Female," William H. Cary; November 28, John A. Lichty, Clifton Springs, N. Y., "Diarrhea," and December 5, Chevalier Jackson, Philadelphia, "Esophageal Obstruction."

Five Year Program on Periodic Health Examinations.—A five year program, involving the expenditure of $100,000, to lay the foundation for the inclusion of the periodic health examination in the regular routine practice of medicine in this country, was announced, August 16, when the official report of the Greater York Committee on Health Examination was made public. The report is an outgrowth of last year's campaign for periodic health examinations. A canvass of 100 metropolitan physicians at the end of that campaign showed that 85 per cent felt that a longer campaign was necessary. More than 400 requests were received by the committee from Italy, France, Belgium, England and other nations for information on how to conduct similar campaigns. The five year program planned by the committee will include the establishment of special educational facilities to teach physicians the proper application of health examination in private office practice and the enlistment of the aid of recognized medical institutions and teaching faculties; the establishment of graduate courses for practicing physicians; a review of the curriculums of medical schools to ascertain whether preventive medicine is adequately presented to the undergraduate and the formulation of a uniform course of study; a study of the existing health examination services rendered by hospitals, outpatient departments and social and welfare organizations; a study of the type of health examination work carried on by the leading industrial concerns in the metropolitan areas, and a sustained propaganda directed to impress the general practitioner with the value of health examination in general office practice. Dr. Abraham J. Rongy is chairman of the committee, which includes also the presidents of the five county medical societies.

NORTH DAKOTA

State Medical Election.—At the recent annual meeting of the North Dakota State Medical Association, Dr. Andrew Carr, Minot, was elected president, and Dr. Albert W. Skelsey, Fargo, secretary. The next annual meeting, to be held in Aberdeen, S. D., June 2-4, will be the society's fiftieth anniversary; this is to be a joint session with the South Dakota State Medical Society.

OHIO

License Revoked.—The license of Dr. Abraham M. Goldstandt, Columbus, was revoked, April 1, for gross unprofessional or dishonorable conduct, according to the state board of medical examiners.

"Seal of Safety" Campaign.—A recently completed study of the incidence of typhoid before and after the inauguration of the "seal of safety" campaign has been reported. Ohio was first to take steps in 1923 against the menace inherent in the contamination of water supplies available to travelers on highways. Each source for water was examined and those found safe were labeled. For the purposes of the study, a tier of county general health districts along the Old National Road, U. S. Highway 40, were selected because this highway has not only the largest actual number of certified water supplies but also the largest number in proportion to its mileage to be found along any Ohio highway. With the more general utility of the automobile for travel, the incidence of rural typhoid was intensified along the main arteries of traffic. The typhoid incidence in the selected health district during six years prior to 1923 was 1,023, and for the six years after the inauguration of the "seal of safety" work it was 450—a reduction of more than 56 per cent in the number of typhoid cases.

Society News.—The Greene County Medical Society was addressed, August 7, by Dr. Robert Reyburn McClellan, Xenia, on "Shortness of Breath."—— The Adams County Medical Society was addressed at Mineral Springs, August 20, by Drs. Andrew D. Carrigan, Manchester, who talked on typhoid, and Franklin C. Beeks, Portsmouth, on urology.——Dr. Joseph L. DeCourcy, Cincinnati, addressed the Highland County Medical Society at Leesburg, August 6, on "Gastric and Duodenal Ulcers."——The Ashland County Medical Society was addressed in June at Ashland by Dr. Charles A. Bowers, Cleveland, on "Urology Up to Date."——A symposium on the medical problems of old age will be given at the annual meeting of the Fifth District Medical Society, to be held September 19 at Cleveland. Among others, papers will be given by Drs. William H. Weir on "Menopausal and Postmenopausal Condition in Women"; William E. Lower, "Genito-Urinary Disease and Old Age"; Arthur G. Cranch, "Old Age in Industry"; Richard W. Finley, "Dietetics in Old Age"; T. Wingate Todd, "Anatomical Consideration in Old Age and the Process of Aging," and Roy W. Scott, "The Heart after Forty." Dr. Joseph T. Wearn will speak at the final session in the evening on "The Heart in Old Age."——The Academy of Medicine of Lima and Allen County announce the following series of postgraduate lectures: Dr. Williams McKim Marriott, St. Louis, September 15, "Practical Points in Care and Feeding of Infants" and "Recent Investigations on Nature and Treatment of Nephritis"; September 16, "The Clinical Application of Recent Studies Concerning Chemical Equilibrium in the Body" and "The Application of Specific Measures in the Prophylaxis and Treatment of Infectious Diseases"; Dr. Charles Louis Mix, Chicago, September 17, "Diagnosis of Cardiac Diseases"; September 18, "Diagnosis of Upper Abdominal Diseases," and September 19, "The Kidney and Diagnosis of Renal Diseases" and "Diagnosis of Central Nervous Diseases, Especially the Spinal Cord."—— The annual meeting of the Tri-County Medical Society was addressed, among others, July 1, at Van Wert, by Drs. William N. Taylor on "Urinary Calculi"; Harry L. Reinhart, "The Hormone Diagnosis of Pregnancy," and George I. Nelson, Columbus, "Clinical Aspect and Treatment of Coronary Disease."—— Dr. Morris E. Davis, Chicago, addressed the Akron Summit County Medical Society, September 2, on the forceps operation and showed a four reel motion picture depicting low forceps and forceps in occiput posterior presentation. Dr. Davis will repeat the address and pictures before the Indiana State Medical Society at La Porte, September 25.

SOUTH DAKOTA

Society News.—The Aberdeen District Medical Society and the Whetstone Valley Medical Society were addressed jointly, August 23, at Enemy Swim Lake, by Drs. Robert S. Westaby, Madison, on "Ununited Fractures"; Anatole Kolodny, Sioux City, Iowa, "Modern Management of Head Injuries," and Guy E. Van Demark, Sioux Falls, S. D., "Fractures."

WASHINGTON

Society News.—The annual Seattle Medico-Dental golf tournament will be held at Inglewood Golf Club, September 18.——The medical section of the King County Medical Society will be addressed, September 15, by Drs. Brien T. King on "Clinical History of Toxic Goiter"; Frank H. Douglass.

Seattle, "Pseudo-Leukemic Anemia Without Splenomegaly (von Jaksch Anemia)," and Sir James Barrett, Sydney, Australia, "Bush Nursing," illustrated. The ophthalmologists of Seattle will give a dinner in honor of Sir James Barrett prior to the meeting.

CANADA

Postgraduate Tour of British Columbia Association.—The autumn postgraduate tour of the British Columbia Medical Association will commence with a program at Fernie, September 20. Following this visits will be made to Trail, September 22; Revelstoke, September 24; Harrison Hot Springs Hotel, September 26, where the program will be arranged by the Fraser Valley Medical Society; Victoria, September 29, and Nanaimo, September 30. An evening meeting will be held at Vancouver, October 1. On October 4, the tour will visit Prince Hubert, followed by a trip to Prince George. The party will leave for the East, October 8.

GENERAL

Annual Safety Congress.—The National Safety Council will hold its nineteenth annual congress and exposition at the William Penn and Fort Pitt hotels, Pittsburgh, September 29-October 3. The programs include addresses by Drs. Don M. Campbell, Detroit, "Industrial Care of the Eyes"; Harold S. Hulbert, Chicago, "Mental Self-Discipline Aids in Handling Oneself and Others, Especially in Relation to Accident Prevention and Safety"; Jesse E. Ambler, Ford City, Pa., "Cooperation Between the Worker and Management in Health Programs"; Volney S. Cheney, Chicago, "Accident and Health Hazards in the Packing Industry," and Carey P. McCord, Cincinnati, "A New Investigation of the Toxicity of Benzol and Its Impurities." The complete program embraces over 200 papers. All meetings are open to the public.

Society News.—The American College of Surgeons will hold its twentieth annual clinical congress in Philadelphia, October 13-17, at the Bellevue-Stratford Hotel. Demonstrations are to be given among others by Drs. John B. Deaver, Robert Shoemaker III, John Chalmers Da Costa, Thomas C. Stellwagen, P. Brooke Bland and Chevalier Jackson, all of Philadelphia. The address of the retiring president will be given by Major General Merritte W. Ireland, Washington, D. C., and the address of the new president by Dr. C. Jeff Miller, New Orleans. The John B. Murphy oration in surgery will be given by Prof. George Grey Turner, Newcastle-on-Tyne, England. Among the foreign guests will be Dr. William Ernest Miles, London, who will talk on "Cancer of the Rectum"; Prof. Otfried Foerster, University of Breslau, Germany, surgical treatment of neurogenic contractures, and Prof. Emile de Grosz, Budapest, Hungary, ophthalmologic surgery.——Officers of the American Therapeutic Society for 1930-1931, elected at the recent annual meeting, are: president, Dr. Clement R. Jones, Pittsburgh; vice presidents, Drs. William J. Mallory, Washington, D. C., William Engelbach, Santa Barbara, Calif., and Leonard M. Murray, Toronto, Ont.; secretary, Dr. Grafton Tyler Brown, Washington, D. C., and treasurer, Dr. Truman G. Schnabel, Philadelphia.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons.—The forty-third annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons will be held at the General Brock Hotel, Niagara Falls, Canada, September 15-17, under the presidency of Dr. Edgar A. Vander Veer, Albany, N. Y. The annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons Foundation, Incorporated, will be held, September 13. The Joseph Price Foundation Lecture (number 3) will be given by Prof. Jean Louis Faure, University of Paris, France, on "The Wertheim Operation for Cancer of the Cervix" and "A Hysterectomy for Fibromyomata." The president's address will be given by Dr. Vander Veer on "The Romance of the Abdomen." Addresses will be given, among others, by Drs. Thaddeus L. Montgomery and P. Brooke Bland, Philadelphia, on "Etiology and Significance of Necrosis (Infarction) of the Placenta: A Biologic and Histologic Study"; Herman B. Van Wyck, Toronto, "The Treatment of Hyperemesis Gravidarum"; Quitman U. Newell, St. Louis, "The Present Status of Tubal Insufflation with a Description of a New Method," and George W. Crile and Thomas E. Jones, Cleveland, "A Comparison of the Results of Surgical and of Radiation Treatment of Cancer of the Cervix—An Analysis of Two Hundred Cases Subjected to Radiation Treatment." A feature of the program will be a symposium on the hemorrhages of pregnancy. Entertainment will include an automobile trip about the falls, a trip through the power plants and golf.

Bequests and Donations.—The following bequests and donations have recently been announced:

Christ Hospital, Jersey City, $10,000 by the will of the late Dr. Gordon K. Dickinson.

Indiana University Medical Center, $250,000 by the will of the late Mrs. Jessie Walker Landon. The income will be used for research and educational purposes. The income from an additional $10,000 is to be used for the purchase of linen for the hospital.

Methodist Episcopal Hospital, Indianapolis, $25,000 by the will of C. M. Aydelotte.

Presbyterian Hospital, New York, a trust fund of $100,000 and real estate at Rye, N. Y., by the will of the late William W. Cook.

New York Dispensary, Hospital for Ruptured and Crippled and Nassau Hospital, Mineola, L. I., will share, ultimately, in the $1,000,000 estate of the late William Cashman Ferguson.

New York Skin and Cancer Hospital and St. Vincent's Hospital, each $203,267 by the will of the late Mrs. Ida Yates Duhain.

Lankenau Hospital, Philadelphia, $5,000 by the will of the late Miss Lena Farschon.

The Good Samaritan Hospital, Lexington, Ky., $100,000 from an anonymous donor.

Maine General Hospital, Portland, $100,000 from Cyrus H. K. Curtis, Philadelphia.

Christian Psychopathic Hospital, Cutlerville, Ohio, and General Protestant Orphan Hospital, Cincinnati, each $25,000, and Deaconesss Hospital and Children's Home, both of Cincinnati, each $10,000 by the will of William Van Agthoven.

United Hospital, Port Chester, N. Y., $50,000 through the will of the late Mrs. Maria Louise Dimon Mallory for the maintenance of a women's ward.

St. Agnes', St. Joseph's, Misericordia and St. Mary's hospitals, all of Philadelphia, $5,000 each by the will of John Meehan.

Woman's Medical College of Pennsylvania, two bequests of $5,000 each by the will of Dr. Henrietta M. Dougherty-Trexler; one bequest is operative immediately and the other will go to the college on the death of the testator's husband.

Alumni Association of Methodist Episcopal Hospital, Philadelphia, $500 by the will of Mary J. Robinson.

University of Pennsylvania, $300,000 in trust under the will of Mrs. Julia Brill Patchett. Under the terms of the bequest, university trustees are empowered to use the fund in one of three stipulated ways.

Homeopathic Medical College and Flower Hospital, New York City, about $17,000,000 on the death of an only surviving sister, Ella Von E. Wendel, from the Wendel-Swope estate; the will provides an immediate gift of two properties in New York City.

St. Clara's Hospital, Lincoln, Ill., $2,000 by the will of Dan Canary.

FOREIGN

Society News.—The ninth National Medical Congress will be held at Guadalajara City, state of Jalisco, Mexico, November 30-December 6, organized by the Asociación Médica Mexicana, and under the presidency of Dr. Rafael Reygados Vérliz. The congress will not be restricted to medical practitioners but will be open to members of other scientific branches. The congress program will cover sixteen sections. Further information may be secured from the general secretary, Dr. D. Leopoldo Escobar, Calle de Manuel María Contreras 7, Mexico, D. F., Mexico.——The twentieth annual meeting of the Oxford Ophthalmological Congress was held at Oxford, July 10-12, with 149 members present. Addresses were given, among others, by Sir Oliver Lodge on "Modern Theories on the Nature of Light"; Prof. Schuller, Vienna, recent developments in radiology associated with ophthalmology, and Prof. Jules Gonin of Lausanne on detachment of the retina and its treatment. The Doyne Memorial Lecture was given by Dr. Harry Friedenwald, Baltimore, on the pathologic changes in the retinal blood vessels in arteriosclerosis and hypertension.——The twenty-first Congress of French Physicians will be held, September 23, at Liége. The subjects to be discussed are medical pathology, general pathology and therapeutics.——The Eighth International Congress of the History of Medicine will be held in Rome, September 22-27. The secretary of the congress is Dr. F. Rocchi, Corso Vittorio Emanuele, 173, Rome.

British Medical Association Election.—At the annual representative meeting of the British Medical Association at London, July 18-22, officers were elected as follows: president (1931-1932), Dr. William G. Willoughby, medical officer of health of Eastbourne; vice president, Sir Ewen J. Maclean, Cardiff; Canadian vice president, Dr. Alexander D. Blackader, late editor of the *Journal of the Canadian Medical Association*. In the annual report submitted to the association, the membership was given as 35,310, which included the election of 2,000 new members during the year. On account of financial conditions the organization committee found it impossible to remit subscriptions of members of forty years' standing which was proposed last year. More than 1,000 persons have been members of the association for forty years and 148 have been members for fifty years. The Sir Charles Hastings Prize, awarded to a general practitioner for research work, was won by Dr. William Henry Bradley, Stratton-on-the-Fosse. The Katherine Bishop Harman Prize was given to Drs. Richard Robins Armstrong and Harold Burt-White, who submitted a joint essay.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 23, 1930.

The Undiminishing Maternal Mortality

The departmental committee on maternal mortality and morbidity, appointed by the ministry of health, has presented an important report. The committee consisted of eminent obstetricians and physicians who were requested "to advise upon the application to maternal mortality and morbidity of the medical and surgical knowledge at present available and to inquire into the needs and direction of further research work." The report opens with a review of the existing conditions, showing that whereas the birth rate has fallen since 1911-1915 from 23.6 to 16.3 per thousand, the infant death rate from 109 to 70 per thousand births, and the general death rate from 14.3 to 13.4 per thousand, the maternal mortality has risen from 4 to 4.3 per thousand births of live children. Thus, in spite of the advance of science and of efforts to reduce the mortality, it remains unimproved. The maternal mortalities of other countries are compared. Several have lower rates—Holland, 2.4; France, 2.5; Italy, 2.4. Others have higher rates—the United States (birth registration area, 1921-1925), 8.3; Germany, 5.1; Belgium, 5.6. These differences of rates have not been fully explained. An analysis of 2,000 maternal deaths was made. They were divided into two classes—deaths directly due to pregnancy and childbearing, including abortion and ectopic pregnancy, numbering 1,596, and deaths due to an independent concurrent disease, numbering 404. In the former class the percentages of the most important causes of death were: sepsis, 38.6; eclampsia, 13.6; operative shock, 9; antepartum hemorrhage, 7.8; postpartum hemorrhage, 5.7. In the septic cases, ineffective antiseptic solution or carelessness in using them was held responsible in many cases. The committee holds that eclampsia is an almost entirely preventable disease, provided urine and blood pressure tests are made regularly and with sufficient frequency during pregnancy and that treatment is prompt and adequate. More than half of the deaths from eclampsia are attributed to nondetection of the albuminuria. In the vast majority of fatal hemorrhages there had been a warning hemorrhage some days or weeks previously. Had this been heeded and the patient removed to suitable surroundings, the fatal result could often have been avoided. Analysis shows that in nearly half the total fatal cases there was a primary avoidable factor which was one of four kinds—omission or inadequacy of antenatal examination, error of judgment in the management of the case, lack of reasonable facilities, or negligence of patient or friends. In nearly a third of the cases classed as errors of judgment, the mistake was premature application of the forceps. In a large proportion of the fatal septic cases the labor was normal. There was no convincing evidence of direct spread from patient to patient as an important factor in maintaining the high and increasing death rate from puerperal sepsis. The opinion is expressed that "so long as no definite source of infection is present, unhygienic and crowded dwellings and dirty surroundings do not in themselves increase the incidence of puerperal sepsis." The consensus is that infection comes from without, though infection from the patient's own body is by no means excluded. The exclusion of every possible source of infection is therefore urged. Physicians and nurses should wear masks, rubber gloves and sterilized gowns and head coverings. Nurses employed in maternity hospitals should be examined physically from time to time to insure that they are not carriers of infection. A second important cause of death was eclampsia. The danger of this should be determined during the antenatal period so that it is an almost entirely preventable disease. Ample proof was obtained of the need of a higher standard of knowledge and skill on the part of the general practitioner.

RECOMMENDATIONS

Among the recommendations of the committee are the following: Every student should devote his whole time to hospital practice for six months in midwifery and gynecology, during not less than two of which he should act as resident in a maternity hospital. He should attend and personally deliver not less than thirty cases under adequate supervision.

A NATIONAL MATERNITY SERVICE

Finally, the committee outlines a national maternity service, based on two main principles. 1. Provided medical antenatal and postnatal supervision is secured, attendance on normal cases should be the function of the midwife. 2. With certain exceptions, institutional provision should be made mainly for abnormal cases. The essential services to be provided are summed up as follows: 1. A registered midwife for every case to act either as a midwife or as a maternity nurse. 2. A physician to carry out antenatal and postnatal examination in every case and to attend as may prove necessary, during pregnancy, labor and the puerperium, all cases showing any abnormality. 3. A consultant when desired by the physician in attendance. 4. Hospital beds for cases requiring institutional care. 5. Ancillary services, such as transport, sterilizing equipment and laboratory equipment.

The Faraday Centenary

The Royal Institution is making arrangements for the celebration in September, 1931, of the discovery by Michael Faraday of electromagnetic induction, in which lies the origin of the dynamo and the whole of the utilization of electrical power for the service of man. On Aug. 29, 1831, he wound two coils of wire on to the opposite sides of a ring of soft iron, connected one coil to a battery and the other to a galvanometer, and at the make and break of the circuit connected with the battery found deflections in the galvanometer. From this simple experiment has grown the science of electrical engineering, including its medical applications. In a preliminary announcement the Royal Institution says: "No other experiment in physical science has been more fruitful in the benefit of mankind." Other scientific organizations are cooperating in the celebrations, including the Institution of Electrical Engineers, the Royal Society and the British Association. The Federal Council of Chemistry will participate in a Faraday exhibition, for Faraday's chemical researches are hardly less remarkable than his electrical—his isolation of benzene and his establishment of the laws of electrochemistry. Faraday kept a careful diary in his own hand of all his experimental work. For sixty years this diary has been the most treasured possession of the Royal Institution, which has resolved to publish it in full. Some of the six or eight volumes will be ready for the centenary.

Sterilization of the Unfit

Opponents of the sterilization of the unfit generally argue that, because the bulk of defectiveness is carried by normal or subnormal but not defective persons, the sterilization of mental defectives would be futile. In a letter to the *British Medical Journal*, the Eugenics Society rebuts this argument and points out that its attitude has been misunderstood. The society has never advocated sterilization as an alternative to segregation. Its late president, Major Leonard Darwin, wrote: "Segregation should be regarded as the normal method of dealing with all aments, and, if properly conducted, does meet all the racial requirements." The society has never held that a policy of even wholesale sterilization would completely eradicate mental defectiveness. It has carefully considered the question of the carrier and holds that, while the problem of defectiveness will always be with us, it is open to us to determine whether in the future the problem will be restrained within negotiable limits or swell to unmanageable proportions. The society disagrees with the

statement, endorsed by the *British Medical Journal*, that "if every certifiable mental defective had been sterilized twenty or thirty years ago it would have made little appreciable difference to the number of defectives existing today." Mr. R. A. Fisher, F.R.S., has shown that, even on the most unfavorable genetic and social assumptions with regard to defectiveness, the incidence would be reduced by as much as 17 per cent in one generation if all defectives in that generation were prevented from having children.

Accidents in Industry

Much new ground, particularly in regard to provisions for safety, is covered in the annual report of the chief inspector of factories and workshops. The number of accidents has increased from 154,319 to 161,269, and of fatal accidents from 953 to 982. The greatest number of fatal accidents occurred in the building trade (133). Only about 20 per cent of accidents were due to moving machinery, the remaining 80 per cent being due to causes which for the most part cannot be prevented by physical safeguards. By far the larger proportion are due to causes such as falls, workers being struck by a falling body, handling tools and the use of hand tools; 17,586 accidents were due to sepsis, of which 51 were fatal. This figure of more than 10 per cent is held to represent great neglect to use the first aid appliances which are compulsory in every factory. The "safety first" movement has made a big step forward, but there have been great differences in the efficiency of the various organizations. A new development in the work of the inspectors of factories is the giving of lectures on safety, illustrated by lantern slides on methods of safeguarding machinery. Many accidents were due to indifference to danger. The acme of this was the fatality to a foreman steel erector who was walking on an 18 inch steel girder at a height of 75 feet, reading a plan and not watching his feet. He walked off the end of the girder! The adoption in factories of a five day week (about forty-three hours) has generally been found to result in increased output as compared with the previous six day week.

Causes of the Increasing Mortality from Cancer

The registrar general for Scotland has published the result of an important investigation on cancer in Scotland during the last fifty years, in which he discusses the problem of the continued upward trend of this dread disease. From 1878 to 1928 the annual number of deaths ascribed to cancer increased from 1,829 to 6,901, representing an almost threefold increase in the death rate. England, in common with other civilized countries, has had much the same experience. How much of this increase can be ascribed to the changing age constitution of the population and how much to better diagnosis? In a paper read before the Medico-Chirurgical Society of Edinburgh, Dr. Crawford-Dunlop came to the conclusion that not less than three fourths of the increase of cancer between the years 1911 and 1928 has been due to the aging of the population; i. e., to the presence of large numbers living at those ages when the cancer death rate is high. The remaining fourth he attributed mainly to improved methods of diagnosis, especially roentgen and pathologic examinations. The only form of cancer which he believed had increased independently of these factors is cancer of the breast in women. Not only cancer but apoplexy and the other principal causes of death after the age of 50 show increasing figures. The increasing age of the population is illustrated by the fact that the expectation of life at birth in Glasgow has increased by seventeen years since the seventies of the last century.

Venereal Disease in the Empire

How to coordinate maternity and child welfare services with the efforts now being made to combat the spread of venereal disease was discussed by the British Social Hygiene Council at an imperial conference held in London. Mr. L. S. Amery, who presided, said that the real remedy for venereal disease lay not in licensed houses and periodic examination but in the effective provision of treatment. In the colonies they wanted to secure the willing support of the European women, who could get into human touch with the native population, if they were taught the native languages. Dr. Flora Lloyd, assistant health officer for Swansea, said that in Swansea the women's venereal disease center was put in the same building as the antenatal and postnatal clinics in order to avoid suspicion in the minds of women that they were being treated for venereal infection. There were different rooms and different entrances. Dr. S. Norohana of Bombay reported that in Bombay there was an infant welfare scheme with ten centers, each with special officials, including one or two venereal disease specialists, who were women, to whom all the venereal cases were referred. Several dominion representatives addressed the conference on the treatment and prevention of venereal disease among migrants to the dominions. Dr. McCallum, chief Australian medical officer in London, said that each migrant whose passage was assisted from England was medically examined here. If a case of venereal disease occurred on the voyage, the ship's doctor was bound to report it in Australia. On arrival every passenger had to pass a medical officer of the commonwealth health department.

PARIS

(From Our Regular Correspondent)

Aug. 13, 1930.

Effect of Sympathetic Stimulation on the Leukocyte Count

Addressing recently the Société médicale des hôpitaux, J. Tinel and J. Henrion sought to adduce arguments in support of a theory that they hold, which is not entirely new, that the leukocyte count is controlled by the various actions of the two parts of the sympathetic system. They cited instances in which tobacco and phenobarbital had produced almost constantly leukopenia, affecting chiefly the neutrophil polymorphonuclears, the proportion of which may be lowered by from 56 to 36 per cent in heavy smokers, with monocytosis of the large and medium-sized mononuclears, together with eosinophilia. These phenomena may be reproduced at will if tobacco is indulged in to excess and will disappear on its discontinuance. Phenobarbital acts in the same manner. Tinel says that by comparing these results with the action of the pharmaceutic agents on the sympathetic nerves one may assume that the paralysis of the sympathetic nerve influences the activity of the hematopoietic organs. It has been found, also, that substances that stimulate the sympathetic nerves, such as epinephrine, or paralyze the vagus nerve, as atropine and scopolamine, cause a marked leukocytosis. On the contrary, substances that stimulate the vagus nerve, such as physostigmine and pilocarpine, produce the same leukopenia, affecting chiefly the neutrophil polymorphonuclears, as ergotamine tartrate, which paralyzes the sympathetic nerve. One will understand, therefore, why certain states of sympathetic hypertonia—fear and maniacal excitation—are usually accompanied by polynucleosis. On the other hand, relative leukopenia, found in most asthenic conditions, nervous depression or stupor, and in certain cases of asthma, migraine, epilepsy or periodic psychosis, appears to be in relation to a functional diminution of sympathetic activity or stimulation of the vagal tonus. This theory did not meet with any approval at the hands of the members of the Société médicale des hôpitaux who were present. Mr. Bezançon cast doubt on the figures of Mr. Tinel. Persons with migraine and urticaria do not present eosinophilia, whereas asthmatic patients are characterized by eosinophilia. Mr. Pagniez, Mr. Lortat-Jacob and Mr. Laubry emphasized the instability of the leukocyte count, the variations of which depend on a multitude of causes, of which the sympathetic nerve is doubtless not one—for example, the various phases of digestion, infection or inflammation, but Tinel held to his position.

Congress of Legal Medicine

The fifteenth annual session of the Congrès français de médecine légale was held recently in Paris, under the chairmanship of Mr. Dervieux. The opening session was presided over by Mr. Champetier de Ribes, minister of pensions. The first paper, by Mr. Heger-Gilbert, Brussels; Mr. Laat, Brussels, and Dr. Laignel-Lavastine, Paris, on the medicolegal aspects of sudden death, was a continuation of the study of the subject, which was left uncompleted by the congress, last year. Mr. Snoeck considered sudden death due to functional disorders or to lesions of the female reproductive organs. Mr. Van den Branden dealt with the much more rare cases of sudden death due to disorders or lesions of the male genitalia. Mr. J. Slosse spoke of sudden death in renal disorders of the two sexes (uremia); Mr. E. J. Bigrood, in diathetic diseases (diabetes); Mr. Le Fèvre of Avrie, in infectious diseases, and Mr. V. Pechère took up sudden death in children.

RELATION OF OSTEOMYELITIS TO TRAUMATISM

Mr. Leroy and Mr. Müller of Lille in a paper on "Relation of Osteomyelitis to Traumatism," said that such a relationship is rare; for only one case of osteomyelitis is encountered in 4,000 occupational accidents. The traumatism merely localizes in one bone a preexisting infectious condition. The period within which the poliomyelitis appears ranges from twenty-four hours to one month. The speakers divided the cases of traumatic osteomyelitis into four groups: (1) those arising as a result of a direct shock; (2) those arising as a result of an indirect shock; (3) those provoked by a traumatism affecting an old focus; (4) those resulting from metastasis, so to speak, due to a traumatism outside the initial focus. From the medicolegal point of view, the important fact is the right to compensation after a traumatism has been the sure cause of osteomyelitis. The right to compensation is not contestable in open cases of osteomyelitis infected directly from the exterior. In cases of closed osteomyelitis, in which account must be taken of the previous condition, and, more particularly, in so-called metastatic osteomyelitis, there is room for doubt and each case must be judged on its merits. Traumatism caused by a second party should be judged in the same light as if it had been caused wilfully by the subject himself and therefore would not furnish grounds for compensation. Particular cases were cited by Gauthier and Trubert of Paris; Mr. Mazel, Mr. Dervieux, MM. Minowich and Muresham of Bucharest; Mr. Chavannez of Bordeaux, and others. Mr. Etienne Martin of Lyons did not think that a traumatism could cause osteomyelitis in a healthy person.

INFLUENCE OF MYSTICISM ON CRIME IN MODERN SOCIETY

The third topic was "La criminalité mystique dans les sociétés modernes," by Mr. Costedoat, physician to the Hôpital école militaire du Val-de-Grâce in Paris, who considered all the antisocial reactions influenced by mysticism, ranging from suicide and theft to violent crimes, but remaining in the domain of religion, without taking up the political and social aspects of the problem. All these acts are those of psychopathic or ordinary mentally deranged persons, mysticism not having, in his opinion, any peculiarly criminogenic influence. These subjects are pseudojustices and their victims are found usually in their immediate environment. These facts have their analogies in the history of past centuries. The crimes have remained the same, whereas religious faith has diminished, in our age, among the classes with limited education. On the other hand, the courts are less credulous than formerly and understand better how to recognize psychopathic individuals. A long discussion developed in regard to the meaning and the characteristics of mysticism, as a result of which the debate deviated somewhat from its medicolegal character.

The next Congress of Legal Medicine will be held in Paris, May 25-27, 1931, under the chairmanship of Mr. C. Paul. The four main topics on the program are: A Medicolegal Study on Automobile Accidents, to be presented by Mr. Simonin; Traumatic Gastric Ulcer, by Mr. Etienne Martin; Crimes Due to Passion, by Mr. Lévy-Valensi, and The Responsibility of Physicians, by MM. Duvoir and Donnedieu of Vabre.

Epidemic of Poliomyelitis in Alsace

A new epidemic center of infantile paralysis has developed in the department of Bas-Rhin (Alsace), and includes several villages. The epidemic is spreading in that department, slowly. The total number of children affected with the disease is, at present, 210, as compared with 144, July 17. Cases have developed in 48 out of 561 communes. The distribution of prizes in the schools, which marks (in July) the close of the school year, was suppressed by order of the prefect, in order to reduce the occasions for contamination among the children. For years there have been epidemic centers of poliomyelitis in northern France—in Lorraine, in the Ardennes region, and in the vicinity of Nancy; but this is the first time that such an important epidemic has developed. The minister of public health has delegated Mr. Jules Renault, technical counselor of his ministry, to make an inspection of the infected regions. The Pasteur Institute has sent Mr. Levaditi to the scene, with a supply of Pettit serum. The hotel keepers of the region, who fear that their business will suffer, as this is the season of vacation excursions in Alsace, are protesting against the news published in the press and, naturally, declare that reports are exaggerated.

Vaccination in the Army

Mr. Maginot, minister of war, recently filed a bill that would make antidiphtheria vaccination compulsory in the army—at least when an epidemic of diphtheria is prevalent in cities in which troops are garrisoned. At present, antityphoid vaccination is compulsory; also antiplague vaccination and anticholera vaccination for troops sent to the Orient. The vaccine employed would probably be the Ramon anatoxin. It is to be hoped that parliament will enact the proposed legislation, although it is likely that the proposal will encounter opposition.

ITALY

(From Our Regular Correspondent)

July 15, 1930.

Endocarditis Lenta

Professor Schupfer, director of the Clinica medica in Florence, recently delivered a lecture on endocarditis lenta at the Scuola di sanità militare. The speaker said that the disease is difficult to diagnose at the start and the patients are sent to the clinic under widely different diagnoses (malaria, cystopyelitis, undulant fever, renal tuberculosis). The clinical picture presents, indeed, a wide range of symptoms, although the endocarditis itself does not become manifest for some time. In the Florence clinic, *Streptococcus viridans* was isolated in 50 per cent of the patients with endocarditis lenta. That microorganism has the habit of implanting itself on previously injured valves of cardiopathic persons, so that if the patient had a mitral lesion it remains mitral and does not develop an aortic lesion, and likewise with other old valvular lesions. This fact differentiates clinically endocarditis lenta from other forms of endocarditis and is opposed to the idea of those who consider *Streptococcus viridans* as merely a variety of the hemolytic streptococcus.

The speaker explained the symptoms of endocarditis lenta, calling attention to the fever, which often passes unobserved, since, like the fever of tuberculosis, it is well tolerated by patients and is not usually accompanied by chills or sweats. Another important symptom is the splenic swelling, due possibly to the presence of infarcts, which, when they occur, cause pain and friction about the spleen. Another symptom is anemia,

with changes in the white cells of the blood. Embolisms are frequent. The prognosis is always unfavorable, death ensuing sooner or later.

Sanitary Aid for War Orphans

Sanitary aid for war orphans (which number 345,000) is at present under the direction of Dr. Cesari, provincial physician. During the past year, more than 400 orphans affected with tuberculosis were admitted to therapeutic institutions, which entailed an expenditure of 1,750,000 liras.

First-Aid Train

The ministry of transportation has ordered the construction of a special sanitary train to render prompt aid in case of earthquakes or other public calamities. The train is composed, in addition to cars for the transportation of personnel and sanitary equipment, of a car provided with material for the rapid installation of telephones, telegraph and radiotelephones.

A Summer Medical Course

Professors of the University of Milan, at the suggestion of Prof. Cesare Cattaneo, pediatrician, have organized in Varese a second summer course in medicine. Among many physicians registered for the course were twenty foreigners. Professor Cattaneo, the director, states that the course will be devoted to the physiology and the pathology of the circulatory apparatus and the kidneys, and will comprise lectures, discussions, and daily clinical and laboratory exercises, which will be held in the Ospedale civile in Varese under the supervision of Professor Ponticaccia, director of that hospital.

Professor Gentile, member of the chamber of deputies and director of the Istituto interuniversitario, in speaking of the place which the course assumes in the educational movements of the nation, said that physicians, who are often too much absorbed with the material side of their profession, should be given an opportunity to make contact again with their teachers and hear how they attempt to solve scientific problems. Furthermore, he said, the practitioner becomes a slave of dogmatism in the intellectual field and of empiricism in the practical field.

Prof. Arturo Castiglioni, professor of the history of medicine, at the University of Padua, gave the inaugural lecture, in which he considered the contributions of Italian masters to the study of cardiopathology. Castiglioni called to mind Lancisi, Albertini and Morgagni, who at the beginning of the eighteenth century laid the bases of the clinical conceptions and the diagnosis of diseases of the heart. Speaking of the discovery of the circulation, Castiglioni recalled that Andrea Cesalpino of Arezzo was the first to have an exact and complete vision of the phenomenon, and established the conception and the term "circulation." Seventy years after Cesalpino, Harvey, a former pupil of Fabrizio d'Acquapendente, the discoverer of the valves of the veins and their functions, collected all the elements for the physical proof of the circulation, and, together with corroborating experiments, published a book on the circulation of the blood.

Congress of Legal Medicine

The fourth congress of the Associazione italiana di medicina legale was held at Bologna, under the chairmanship of Professor Perrando, of the chair of legal medicine at the University of Palermo. Professor Martinotto welcomed the delegates in the name of the University of Bologna. Senator Alessandro Stoppato and Prof. Mario Carrara presented the official papers on the main topic, "Expert Medicolegal Service and Its Modifications." Professor Stoppato discussed the proposals regarding expert medicolegal service, as contained in the draft of the new code of penal procedure, and explained a personal suggestion in the form of expert medicolegal service based on certain demands. According to Stoppato, the judge called on to give instructions in a court trial must be free to select a medicolegal expert; the defendant, if he so desires, should be allowed to select a second, and the private party who is drawn into the case should be entitled to choose a third medicolegal expert. The medicolegal experts should be permitted to discuss orally and publicly the matters on which they are called on to pass expert opinions; it is within their province to summon testimony and interrogators and to aid in the collection of testimony, demanding the adduction of proof for such facts as tend to establish their announced opinions. The judge should have the power to restrict the expert medicolegal service to the needs of the case, and, if he finds it indispensable, may dismiss the medicolegal experts and demand new ones. Professor Carrara, who confined himself to the rendering of medical expert opinion, coincided with the ideas expressed by the previous speaker. Prof. Vittorio Putti, director of the Istituto ortopedico Rizzoli, who presented the official paper on "Vertebral Arthritis in Relation to Trauma," treated the subject from the anatomic and clinical side and from the point of view of occupational accidents, in which field the applications of late have been frequent and often of uncertain solution as regards the relations to the awarding of compensation. Professor Perrando was reelected president of the Società italiana di medicina legale.

In Memory of D'Antona

Riesi, the home of Prof. Antonino D'Antona, held recently special ceremonies in memory of that master of surgery, who was a follower of Pasteur and of Lister and was one of the founders of modern Italian surgery. His most important publications were those on inflammation and ulceration, which, during a period in which the cellular theories of Virchow were dominant and before the researches of Conheim, emphasized the importance of disturbances of the blood circulation in inflammatory processes. Following these there appeared a notable series of articles in which D'Antona reported the first brilliant results that he secured through the application of the antiseptic method to abdominal, gynecologic, thoracic, renal and orthopedic surgery. He also wrote a treatise, now a classic, on craniocerebral surgery.

CAPE TOWN

(From Our Regular Correspondent)

July 18, 1930.

Anthropologic Investigation in the Union

The Union of South Africa presents many interesting points for the scientific anthropologist, the genetist and the humanologist. Not the least interesting is the determination of the racial and ethnic affinities of the white population. South Africa's white population is supposed to consist of Dutch and English; as a matter of fact the Dutch element in the Dutch speaking section of the community is small. What passes for such is the large section made up of the descendants of Hanoverians, Frisians, Saxons, French, Walloons and north Germans. Even these have mingled with Scottish, English and Welsh settlers, and by intermarriage a mixed stock has been produced which has characters of its own. Afrikaans, the language spoken by this section, is a sister dialect of modern Dutch; it springs from the same trunk but developed along independent lines and today presents many interesting differences from modern Dutch, chiefly in its want of inflections and its syntactical structure. It already has a moderate literature of its own, which has been highly lauded by Dutch critics, its poetry being considered equal to that of the best produced in Holland or Belgium. Owing to the fact that English is the commercial, and has so far always been the predominant, social language, the development of Afrikaans has been overlooked by most English writers, who still look on it as a "kitchen patois" and even claim that it is a creole dialect. As a matter

of fact it is in many ways as labile and as forcible as English itself; several inaugural theses on professional subjects have been published in Afrikaans and accepted by Dutch universities —the first being that of Dr. Albertyn on "Progressive Tests of Mental Intelligence," published in 1911, and the second Dr. van Heerden's monograph on ovarian teratomas; and articles in Afrikaans are occasionally published in the medical journal. It is an interesting fact, too, that the foremost writer in Afrikaans today is a physician and that three of the best known poets are physicians.

For all that, it can hardly be claimed that the Afrikaans section presents a definite ethnic group, although such a contention is sometimes made for it. Recently van der Westhuyzen of Stellenbosch University has investigated the anthropologic relations of this group, taking a number of Afrikaans speaking students as material. He found that they belonged to the dolichomorphic type, with a pronounced tendency toward leptorrhinia, broadening of the face in the malar area, flattening of the nose and widening of the nostrils, together with recession of hair and lightening of the hair pigment. With the exception of the last point, these characteristics seem to show that the descendants of the oldest settlers are acclimatizing themselves just as the Bantu has acclimatized himself. The absence of pigment in the hair—and to a certain extent also in the iris—seems to contradict this conclusion, but it is obvious that van der Westhuyzen's types are not altogether normal—25 per cent of them were found to be flat footed—and that the results recorded from far more extensive school medical investigations in the four provinces show that increased pigmentation of surface areas is the rule in third and fourth generation children. This is the first detailed analysis of the results of anthropologic examination here, and although it has more an academic than a real scientific interest it is stimulating and will lead to further work along similar lines. An attempt is now being made to investigate criminality among the white population; another subject under investigation is the properties of certain indigenous plants that are regarded as of medicinal value.

Pellagra in South Africa

Pellagra in South Africa is probably an old disease, dating from the introduction of the mealie or maize during the occupation of the Dutch East India Company. Although mealie meal is now the staple food of the native population it was not regarded as such in the old days; then millet kaffir corn, a foodstuff of much higher nutritional value and especially rich in lime salts and phosphate, was universally used and the natives were probably much better physical specimens of humanity than what they are now. The introduction of mealie meal as a human food has led to undoubted carbohydrate excess and consequent protein deficiency, and the result of this *milchnarhschaden* among the natives is easily apparent. Pellagra was recognized early in the present century by Macfarlane in Basutoland, Barcroft Anderson at East London, and Egerton Brown among native asylum patients but has usually been regarded as a rare disease in South Africa simply because practitioners are not, as a rule, familiar with its symptomatology. As a matter of fact it is of fairly frequent occurrence among native and Negro children, and cases are not rare at the municipal welfare centers at Cape Town and Durban. Similarly acrodynia is not so rare here as is commonly supposed. Both diseases are well worth investigation from the particular South African angle, and the current issue of the medical journal pleads strongly for such investigation being undertaken by the universities.

Postgraduate Study

The medical faculties of our universities have been highly successful in organizing yearly courses for general practitioners. This year the University of the Witwatersrand organized a special "refresher course" for district surgeons in collaboration with the medical association and its integral group the district surgeons' society.

The position of a district surgeon in the union is analogous to that of the German *kreis-physikus*. He has, however, a far larger area under his control, and it often happens that his official duties keep him days away from home. Most of his work has to be done by motor car, and his traveling allowance is fixed by treasury regulation at such a low figure that he sometimes loses by visiting outlying portions of his district. His drug allowance is ludicrously small, varying from $50 a year to $125. With this he is supposed to treat all patients who are indigent, except those having syphilis, for whom he obtains free arsphenamine, mercurial preparations or potassium iodide. Owing to the isolation of the blackblocks, these officials have little opportunity to get in touch with their colleagues, and consequently tend to rust. All are members of the association, and it speaks much for their loyalty that they continue to pay their subscriptions, although they rarely get a chance to attend meetings or take part in clinical discussions.

In the circumstances, the experiment of holding a special refresher course for them found much support. The department of public health, to which they belong as part time officials, was induced to extend special privileges to them, giving them free railway warrants and counting the time spent in attendance at the university as part of their official time. The course was specially designed to meet their requirements, particuar attention being paid to medicolegal work, pathology and public health matters, and a great deal of the time was devoted to practical work. The result was that the course was an unqualified success, and that the University of Cape Town has decided to institute a similar course next year, it being understood that such courses should be conducted by the two universities in rotation.

Both are admirably equipped for such courses, possessing good modern laboratories and an expert staff of senior men. In European countries our graduates complain that postgraduate courses all too often are conducted by junior demonstrators, registrars and lecturers, who have had no experience whatever of private practice, and are moreover unsatisfactory as teachers of senior classes however good they may be as teachers of students. Our South African universities are not making this mistake, and hence, probably, the popularity of the two postgraduate courses held so far.

The New Cape Town Hospital

It seems that a beginning is to be made at last with the building of the new Cape Town hospital. This institution, from the designs of Mr. Clelland, chief architect to the department of public works and an official who is responsible for most of our public hospitals built in the last ten years, will be on the block system. It will have a magnificent site, on a levelled portion of the slopes of Devil's Peake, part of the famous Rhodes estate, overlooking the picturesque panorama of the Cape Flats and the Hottentots Holland mountains. Possibly no other hospital in the world will have more ideal scenic surroundings, but grave doubts have been raised as to the ideality of the situation in other respects. The site has been chosen mainly for its proximity to the new university buildings, and the hospital will be immediately adjacent to the fine Werner Beit Memorial Laboratories for Pathology and Experimental Pharmacology, which are situated a few hundred yards below the main road leading past the hospital. The institution will cost much more than was originally anticipated, when it was hoped that a 600 bed hospital would be built for approximately £750,000. Now the number of beds has been increased to 700, but the leveling of the site has already cost considerably more than a purchased site would have done.

The planning of the new hospital is considerably in advance of existing institutions in the union and, if the design is carried

out along the lines intended by the achitect, the Cape Town Hospital should be one of the most interesting hospital institutions in the southern hemisphere. It will be a teaching hospital and as such in intimate connection with the University of Cape Town, whose clinical professors and lecturers now have to content themselves with the obsolete and in some respects utterly inadequate New Somerset Hospital, whose buildings date back to the middle of the last century, and whose outpatient department is a disgrace to the community which it serves.

BUCHAREST

(From Our Regular Correspondent)

July 21, 1930.

Manslaughter Due to Carelessness with Cyanide Gas

In Timisoara, the biggest provincial town in Roumania, in a three storied house, the premises of a tenant living on the first floor were disinfected by cyanide gas, applied by the local voluntary ambulance society. On the second floor, just above the cyanized premises, Dr. Juhl, a venereal specialist, lived. A patient, a young journalist, came out from Juhl's office and went to the toilet, apart from the living rooms of Dr. Juhl but reserved for patients' use. About fifteen minutes later some one opened the door of the toilet and saw the dead body of the journalist. Investigation revealed that the cyanide had leaked up through the crevices of the wall. The postmortem examination showed that death was due to the gas. The public prosecutor laid responsibility for the death of the journalist on the chief secretary of the ambulance society and also Dr. Morris Juhl, on the ground that the society took insufficient precautions while using the gas and did not satisfactorily isolate the dwelling. Dr. Juhl is also charged with manslaughter, as he knew the effect of the gas and, despite of having been admonished, was not cautious and did not close the room to which the gas had easy access. The hearing will take place in September.

An Extraordinary Law Against Venereal Disease

The new health law, which has been published in the official gazette, places public hygiene on quite modern grounds. The basic principles of the new health law are as follows: Every patient suffering from venereal disease is obliged to have himself treated, and every public institution is obliged to give free treatment to any one applying for it. Physicians have to enlighten such patients as to the eventual consequences of their ailments; they have to advise treatment and to tell patients that they are subject to severe punishment if they propagate venereal disease. A special regulation will state in which cases and in what occupations the attending physician must notify the health magistrates, and these patients will have to be treated under the control of the health magistrate; if they do not sufficiently guarantee not to propagate the disease, they will be mercilessly interned in a public hospital. The new law punishes those who know they are sick, and still have sexual intercourse, with imprisonment from one to twelve months. A wetnurse who is aware of being sick and still nurses a healthy baby is liable to imprisonment of from one to six months and a fine of from 1,000 to 10,000 lei ($6 to $60). Prostitutes, who are apt to propagate venereal diseases wholesale, will have to be placed under the control of the medical staff of the antivenereal dispensary, who must periodically examine them. As long as the respective patient is liable to infect others, she should be interned in a locked hospital. Persons under such control get special cards from the staff of the antivenereal dispensary, registering every single treatment; the cards have to be handled in strict confidence. These cards may be controlled by the health magistrates exclusively, while no administrative bodies are allowed to scrutinize them. If the owners of these cards neglect to present themselves at regular intervals for treatment, they will be handed over to the police, who will intern them. If any patient misses treatment once only, he is no longer allowed to have himself treated by a private physician and is obliged to continue treatment with a magistrate health officer; if he misses a treatment here also, he has to be treated by the physicians of the antivenereal dispensary or eventually he has to be interned in a public hospital. Those whose registration card shows the presence of an infectious venereal disease and who, despite this, do infect others, go before the court, even if the damaged party does not demand their punishment. Soldiers cannot commence their furloughs until examined by competent medical officers and declared infection-free. If they did have a venereal disease which has become noninfectious, they may start their vacation, but the respective communal medical officer is confidentially informed and asked to supervise the case. Venereal patients who make periodic visits cannot be dismissed by their employers as long as they are declared cured. Infringement of the law can be established by a magistrate physician alone. Private practitioners who issue false certificates are liable to a fine of from 500 to 5,000 lei. In case of repetition the physician can be temporarily prohibited from this kind of practice. If the same offense is committed by a magistrate physician, the punishment is increased.

As seen from the foregoing, the new law lays great stress on the suppression of secret prostitution and on checking the propagation of venereal diseases. A decided advantage for the medical profession is that the law subordinates the police in supervising public morals to the physician in the antivenereal campaign. The framers of the bill were led, in this respect, by western examples. For instance, in Germany the director of the public moral section of the Berlin police is Dr. George Guth, a venereal specialist. The advantage of this system is that it serves as a guaranty that the prosecution is led primarily by the desire to amend and improve and only secondarily to punish.

BERLIN

(From Our Regular Correspondent)

Aug. 18, 1930.

Requirements for a Professional Bacteriologist

The medically approved professional bacteriologists have united to form the Wirtschaftliche Bacteriologen-Vereinigung Deutschlands and have drawn up the following criteria for the protection of their interests: 1. Among the duties of a medically approved professional bacteriologist belong the specific diagnosis and the experimental treatment of infectious diseases (preparation and utilization of serums, vaccines and the like). The activity of a professional bacteriologist performed in this connection is to be regarded as that of a specialist. 2. For this work of a specialist—especially for the work of directors of institutes in which medicobacteriologic work is carried on, a thorough special training is a precondition. 3. Such training presupposes, after the securing of the license to practice medicine, at least four years of work in a bacteriologic or hygienic-bacteriologic institute, under the direction of a recognized professional bacteriologist. 4. If these conditions have been fulfilled, the candidate has met the material requirements for the designation "specialist for bacteriology and infectious diseases." 5. Specialists for bacteriology and infectious diseases, in hospitals, institutes, serving on boards and other organizations, must have the same rank as directing physicians in similar positions. 6. Physicians who are not specialists for bacteriology and infectious diseases, within the scope of these criteria, may perform the activities mentioned under 1 only to the extent that their own special field requires it.

Advertising on the Part of Physicians

Not infrequently one is confronted in Germany, of late years, with the conception that consecutive advertising by physicians

in the daily press is no longer to be regarded as forbidden ethically, since certain public courts (in Hamburg and Rostock) have acquitted physicians who had been guilty of that unequivocal violation of the ethics of the medical profession, on the ground that consecutive advertising in itself does not come within the scope of "unfair" conduct. It is worthy of note and is often suppressed when the matter of advertising by physicians is discussed that the Hamburg *landsgericht*, sitting as a criminal court, imposed penalties on four accused physicians because it regarded the frequent and public offering of medical services, for which there was no special occasion, as "unfair" conduct within the meaning of the law thereunto pertaining. The court, at the same time, raised the question as to what it would lead to if the view that a physician should not enter the field of advertising should ever be seriously questioned, and it reached the conclusion that "any physician who, in order, essentially, to acquire patients, at the expense of the physicians who adhere to the accepted rules of medical ethics, flaunts those rules acts in an unfair manner within the meaning of the law pertaining thereto." The Hanseatic *oberlandesgericht*, however, revoked the judgment, and pointed out that the lower court had based its interpretation of the term "unfair" on incorrect legal considerations.

The legal consideration of the whole matter revolves, therefore, mainly about the question as to whether or not the firmly established ethical view of the medical profession, which, as also the Hanseatic *oberlandesgericht* recognizes, "has as its chief basis the preservation of public interests" and is applicable to the ethical consciousness of the generality in determining whether or not given medical conduct is unfair. In order to get a correct understanding of the divergent opinions expressed by jurists, it must be constantly emphasized that the ethical code of the medical profession was not created to preserve any peculiar sense of dignity on the part of the profession or to gratify any sense of honor or pride, but in order to guarantee the purity of ethical principles in the practice of the profession, such as the public can rightly expect of the physician. The fundamental principle that actuates the ethical relations council is that every physician shall show himself worthy of the respect that his profession demands, and it is from this point of view that the council on ethics considers charges of misconduct. Violations of a sense of propriety in the matter of advertising, public offering of one's services, or even quack-like vaunting of one's medical qualifications strikes at the root of medical ethics. It does not signify, by any means, a disparagement of the merchant that by far the greater majority of physicians regard the invasion of commercial advertising methods as exerting a disruptive influence on the conceptions of the medical profession.

American Delegation at Hygienic Exposition

The United States government sent a delegation to study the International Hygienic Exposition and the German Hygiene-Museum in Dresden. The exposition administration, represented by its president, Stadtrat Dr. Krüger, gave the delegation an official reception, which was attended by Reichskommissar Dr. Külz, Staatskommissar Minister Grossmann, Stadtrat Köppen as representative of the city of Dresden, and the American general consul Haeberle.

Training of Nurses for Children

Uniform federal regulations pertaining to the training of nurses for infants and young children go into effect, October 1. Every pupil is trained, at first for one year, in the theory and practice of the care of healthy infants and young children; then she takes a state examination as a caretaker, or nurse, for children. During a second year, by passing a second test, the right to the title of graduate nurse for young children may be secured.

Marriages

THEODORE STUCKART, Weeping Water, Neb., to Miss Helen Koester of Dubuque, Iowa, July 21.

RALPH W. SHOOK, Kalamazoo, Mich., to Miss Marjorie Thomas of Fremont, Neb., May 23.

WILLIAM A. WHITLOCK, JR., Aiken, S. C., to Miss Pliny Timmerman of Batesburg, June 8.

JOHN G. HEWITT, Iowa City, to Miss Florence Therese Bousquet of New Orleans, July 1.

LESLIE F. WILCOX, Detroit, to Miss Florence T. Jackson of Mohawk, Mich., August 11.

RALPH W. ELSTON to Miss Margaret G. Beckman, both of Kendallville, Ind., July 30.

STUART L. SMITH, Pittsfield, Ill., to Miss Ethel Wentz of Edwardsville, August 15.

ROBERT ARTHUR MATHESON, JR., Raeford, N. C., to Miss Muriel Sutton, July 12.

SAMUEL J. ROSE, Lexington, Ky., to Miss Opal Hendrix of Flemingsburg, June 4.

EMIL HAUSER, Chicago, to Miss Mary Thomas of Woodstock, Ill., July 28.

Deaths

Alonzo Rouse Kieffer ⊕ St. Louis; Missouri Medical College, St. Louis, 1879; member of the House of Delegates of the American Medical Association, 1904-1905; past president of the Missouri State Medical Association, and past president and treasurer of the St. Louis Medical Society; formerly professor of surgery and head of the department of clinics, Barnes Medical College; aged 75; died, August 13, of heart disease.

James Edward Wyant ⊕ Philadelphia; College of Physicians and Surgeons, Baltimore, 1914; served during the World War; on the staffs of the Philadelphia Orthopedic Hospital and the Shriners' Hospital for Crippled Children; on the advisory editorial staff of the *Journal of Bone and Joint Surgery;* aged 44; died suddenly, August 5, of heart disease.

Robert Harold Ker, Vancouver, B. C., Canada; McGill University Faculty of Medicine, Montreal, Que., 1901; formerly professor of anatomy at his alma mater; member of the American College of Surgeons; served with the Canadian Army during the World War; aged 52; died, March 13, in London, England.

Samuel Oscar Carlisle, Dothan, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; member of the Medical Association of the State of Alabama; formerly city health officer; on the staff of Dr. M. S. Davie's Private Hospital; aged 58; died, in August, of heart disease.

Conrad Samuel Reber, West Reading, Pa.; Jefferson Medical College of Philadelphia, 1903; member of the Medical Society of the State of Pennsylvania; county health officer; aged 53; died, July 31, in the Harrisburg (Pa.) Hospital, of injuries received in an automobile accident.

Frederick De Forest Snyder, Ashtabula, Ohio; Cincinnati College of Medicine and Surgery, 1896; member of the Ohio State Medical Association; on the staff of the Ashtabula General Hospital; aged 61; died, August 12, of cerebral hemorrhage.

Ara Marshall Paine, Woonsocket, R. I.; Harvard University Medical School, Boston, 1861; member of the Rhode Island Medical Society; for many years on the staff of the Woonsocket Hospital; Civil War veteran; aged 93; died, June 24.

John A. Roberts, Portage, Wis.; Rush Medical College, Chicago, 1903; member of the State Medical Society of Wisconsin; formerly on the staff of St. Saviors General Hospital; aged 55; was found dead, July 16, of illuminating gas poisoning.

James Levi Scripture, Portland, Ore.; State University of Iowa College of Medicine, Iowa City, 1897; served during the World War; on the staff of the U. S. Veterans' Hospital number 77, where he died, July 30, aged 60, of thrombosis.

Emmett Charles Smythe, Greenville, Miss.; Memphis (Tenn.) Hospital Medical College, 1900; member of the Mississippi State Medical Association; veteran of the Spanish-American War; aged 56; died, July 17, of heart disease.

Meta Howard, Albion, Mich.; Woman's Medical College, Chicago, 1887; formerly health officer of Albion; at one time medical missionary; aged 68; died, July 28, in a hospital at Kalamazoo, of lobar pneumonia and chronic myocarditis.

Claude Emerson Grimm, St. Marys, W. Va.; Jefferson Medical College of Philadelphia, 1910; member of the West Virginia State Medical Association; aged 43; died, July 21, in St. Joseph's Hospital, Parkersburg, of peritonitis.

Dundas Ralph Campbell, Rockville Center, N. Y.; Baltimore Medical College, 1905; served during the World War; aged 52; died, June 8, in the United States Naval Hospital, Brooklyn, as a result of adhesions of the peritoneum.

Harry F. Patten, Dayton, Ohio; Vanderbilt University School of Medicine, Nashville, 1901; member of the Ohio State Medical Association; member of the board of health; aged 53; was found dead, July 11, of heart disease.

James Claud Bonner ⊕ State Park, S. C.; Atlanta Medical College, 1914; on the staff of the South Carolina Sanatorium; aged 41; died, July 29, in a hospital at Columbia, of uremia, following injuries received in a fall.

Paul Smith ⊕ Pikeville, N. C.; Washington University School of Medicine, St. Louis, 1927; aged 27; died, August 3, in a hospital at Wilmington, of injuries received when the automobile in which he was driving overturned.

Charles A. Limeburner, Ridgewood, N. J.; Medical Department of Columbia College, New York, 1879; member of the Medical Society of New Jersey; aged 75; died, June 29, of arteriosclerosis and chronic myocarditis.

Allen H. Veazey, Hudson, Mich.; Chicago College of Medicine and Surgery, 1909; member of the Michigan State Medical Society; on the staff of the Thorn Memorial Hospital; aged 52; died suddenly, July 25, of endocarditis.

Abdo Mansour Haroney ⊕ Niagara Falls, N. Y.; University of Buffalo School of Medicine, 1918; aged 36; died, August 6, in the Mount St. Mary's Hospital, of septicemia, following the extraction of a tooth.

David Richard Williams, Columbus, Ohio; Starling Medical College, Columbus, 1892; member of the Ohio State Medical Association; aged 67; died, August 10, of pneumonia, following a cerebral hemorrhage.

Cuthbert Thompson ⊕ Louisville, Ky.; University of Edinburgh, Scotland, 1892; member of the American College of Physicians; aged 65; died, June 23, in the Johns Hopkins Hospital, Baltimore, of pneumonia.

Edward Augustus Sweet, Helena, Mont.; Chicago Homeopathic Medical College, 1902; served during the World War; formerly member of the state legislature; aged 52; died, July 25, of pulmonary tuberculosis.

Rosa Ellen Hinshaw Lowder, Maquoketa, Iowa; Medical College of Indiana, Indianapolis, 1894; member of the Iowa State Medical Society; aged 63; was found dead, July 28, of illuminating gas poisoning.

John R. Brodbeck, Codorus, Pa.; University of Maryland School of Medicine, Baltimore, 1879; member of the Medical Society of the State of Pennsylvania; aged 74; died, July 23, of cerebral hemorrhage.

James H. Watson, Woodlawn, Ill.; St. Louis College of Physicians and Surgeons, 1881; Civil War veteran; formerly member of the state legislature; aged 84; died, August 4, of hypostatic pneumonia.

Anna Sarah Kugler, Guntur, Madras Presidency, India; Woman's Medical College of Pennsylvania, Philadelphia, 1879; for many years a medical missionary; aged 73; died, July 26, of pernicious anemia.

Johnson J. Glazier, Springfield, S. D.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1888; aged 64; died, recently, of carcinoma of the kidney with metastasis to the lung.

Thomas Francis Flynn ⊕ Everett, Mass.; Tufts College Medical School, Boston, 1924; aged 30; died, July 20, in St. Elizabeth's Hospital, Boston, following an operation for appendicitis.

Elijah Bell Whitehurst, Beaufort, N. C.; Medical College of Virginia, Richmond, 1917; member of the Medical Society of the State of North Carolina; aged 37; died, July 8, of pneumonia.

Sherman See, Levee, Ky.; Kentucky School of Medicine, Louisville, 1900; member of the Kentucky State Medical Association; aged 70; was drowned, July 20, in a lake at Loveland, Ohio.

James A. Riedy, Monongah, W. Va.; College of Physicians and Surgeons, Baltimore, 1902; member of the West Virginia State Medical Association; aged 57; died, July 23, of heart disease.

Lydia Woerner ⊕ Interlachen, Fla.; Woman's Medical College of Pennsylvania, Philadelphia, 1899; formerly a medical missionary; aged 69; died, July 3, of cerebral hemorrhage.

Robert Swift, Boston; Harvard University Medical School, Boston, 1885; member of the Massachusetts Medical Society; aged 71; died, July 18, of pulmonary edema and myocarditis.

Norman Drayton Kittrell, Tchula, Miss. (licensed, Mississippi, 1909); aged 42; died, July 9, in a hospital at Greenwood, of mercuric chloride poisoning and acute bronchopneumonia.

Samuel Marion Parr ⊕ Carthage, Ill.; Keokuk (Iowa) Medical College, 1897; secretary of the Hancock County Medical Society; aged 68; died, July 27, of cerebral hemorrhage.

William Ridley Lee, Mineral Springs, Ark.; Gate City Medical College, Texarkana, 1907; member of the Arkansas Medical Society; aged 48; died, July 13, of heart disease.

Enoch Cloud Long, Prescott, Ariz.; University of Louisville (Ky.) School of Medicine, 1890; served during the World War; aged 76; died, July 18, of chronic myocarditis.

George E. Cole, Tiffin, Ohio; University of Wooster Medical Department, Cleveland, 1879; aged 82; died, August 20, in the Mercy Hospital of carcinoma of the cecum.

Hillard McMullan ⊕ Newton, Miss.; Memphis (Tenn.) Hospital Medical College, 1902; part owner of the Newton Infirmary; aged 52; died, in July, of heart disease.

Henry William Nolte, Newark, N. J.; Baltimore Medical College, 1898; formerly on the staff of St. Michael's Hospital; aged 60; died, August 6, of cerebral hemorrhage.

Charles E. Stafford, Toledo, Ohio; Hahnemann Medical College and Hospital, Chicago, 1886; aged 77; died, August 1, of carcinoma of the stomach and duodenum.

William Joseph Webster, Vivian, S. D.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1884; aged 68; died, March 22, of lobar pneumonia.

D. W. Gilbert, Irving, Texas; Missouri Medical College, St. Louis, 1881; bank president; aged 76; died, July 16, of coronary arteriosclerosis and myocarditis.

Stowell Nelson Brown ⊕ Akron, Ohio; Ohio State University College of Medicine, Cleveland, 1925; aged 29; died, July 23, of carcinoma of the lung.

Huger T. Hall ⊕ Aiken, S. C.; Medical College of the State of South Carolina, Charleston, 1899; aged 52; died, August 1, of cerebral hemorrhage.

Robert C. Fair ⊕ Durand, Mich.; University of Michigan Medical School, Ann Arbor, 1890; aged 63; died, August 10, of multiple cardiac infarction.

Charles Wesley Ballaine ⊕ Cleveland, Okla.; University Medical College of Kansas City, 1897; aged 63; died, suddenly, July 31, of myocarditis.

Herbert Elwood Fernald, Cohasset, Mass.; Boston University School of Medicine, 1895; aged 66; died, July 13, of cerebral hemorrhage.

Francis C. Owens, Ballantine, Mont.; Ensworth Medical College, St. Joseph, Mo., 1900; aged 72; died, May 15, of pneumonia.

L. Narcisse Auger, St. Tite, Que., Canada; Laval University Medical Faculty, 1891; died, in March, of softening of the brain.

William Nast Bahrenburg, St. Louis; Hahnemann Medical College of Philadelphia, 1874; aged 79; died, July 12, of insolation.

Charles M. Whicher ⊕ Des Moines; University of Buffalo School of Medicine, 1896; aged 61; died, July 28, of angina pectoris.

Emil Jungmann, Philadelphia; Medico-Chirurgical College of Philadelphia, 1899; aged 71; died, July 31, of cardiorenal disease.

Gottfried Arn ⊕ Pittsburgh; Western Pennsylvania Medical College, 1895; aged 63; died, July 11, of coronary stenosis.

Charles W. Ward, Chicago; Rush Medical College, Chicago, 1887; aged 71; died, July 24, of coronary embolism.

Elmer E. Heilman ⊕ Hillsdale, Pa.; College of Physicians and Surgeons, Baltimore, 1893; aged 61; died, May 7.

John Dunlap Deacon, Pembroke, Ont., Canada; Trinity Medical College, Toronto, 1888; died, May 14.

Bureau of Investigation

POLYGLANDOL AND POLYGLANDINE

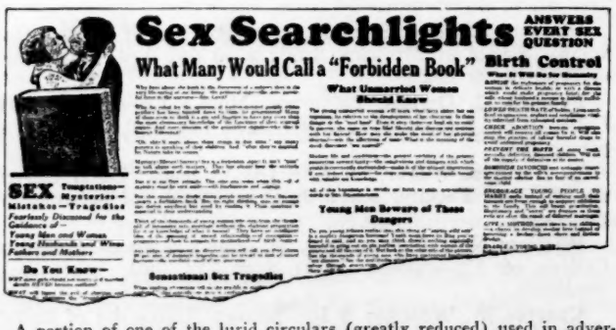
The Indecent Quackery of Ellenbaum et al. and the Advisory Service Bureau

The Rand-McNally Building in Chicago is one of those that run through from one street to the next. It has an entrance on Clark Street and another on LaSalle Street, the addresses being 538 South Clark and 529 South LaSalle, respectively. For some years there have been exploited from a suite of offices in this building some crude mail-order quackeries. These have been carried on under a variety of firm names and with a still greater variety of nostrums. While there probably are several persons connected with the business, the most important factor seems to be one Frank H. Ellenbaum. Some of the names used by Ellenbaum and his associates are:

Science Publishing Company, Inc., 538 South Clark Street.—This seems to have been the parent concern and is used in the sale of a book, "Sex Searchlights." The company was organized in 1924 under Illinois laws by the following persons: N. A. Carbery; Isidore Spinner; Harry W. Carbery. The officers were F. H. Ellenbaum, president, and Marie K. Laws, secretary. Ellenbaum appears to have been circulation manager for a local publishing concern, N. A. Carbery is connected with a printing firm, while Marie K. Laws is, apparently, merely an employee. "Sex Searchlights" has been advertised as "THE MOST DARING BOOK EVER WRITTEN ON SEX AND LOVE!" The prospective buyer is told that before he is half through reading it, he will "gasp with amazement." He is told further that "no other book has dared to present the stark naked truth about what many consider a forbidden topic so vitally and with such force and clearness, and with such utter disregard for false modesty." The advertisements also imply that the book gives contraceptive information; thus:

"By controlling conception (birth control), young married couples are shown how the human race in general and mothers in particular would be vastly benefited."

The book is said to tell "what a wife should do in order to hold her husband's love throughout their married life—and what she should be careful not to do." In short, the advertising matter on "Sex Searchlights" seems to be prepared especially with an eye to stimulating those who are on the lookout for the salacious! One is led to wonder whether the sale of this book is less for the purpose of selling the book itself than that



A portion of one of the lurid circulars (greatly reduced) used in advertising "Sex Searchlights."

of obtaining a list of sexual hypochondriacs, for the main business of the many-named activities of Mr. Ellenbaum and his associates from the Rand-McNally Building appears to be the sale of alleged aphrodisiacs.

Advisory Service Bureau, 538 South Clark Street.—Under this name, Ellenbaum and his associates put out a line of nostrums. "Polyglandol" and "Polyglandine" are aphrodisiacs for men and women, respectively; "Rheuma-RX" is an alleged rheumatism cure; "Norgol Tablets" are said to build up resistance against disease; "Kolax Wafers" are a "chocolate candy laxative"; "Madame X Douche Tablets" are said to be "wonderfully effective" when used with a vaginal douche that the concern sells; "Pelvo-Tone" makes "life again worth living" for "countless women"; "Anti-Leuco-Tabs" are for the treatment of leucorrhea.

Medical Aid Bureau, 529 South LaSalle Street.—Under this name there has been sold a so-called gland treatment, under the name "Goldglan." This comes in two forms—for men and for women. It is said to contain thyroid and anterior pituitary,

Some of the numerous letterheads used by Ellenbaum and his associates in the sale of aphrodisiacs and other nostrums.

and orchitic substance (for men) and ovarian substance (for women), together with "double chloride of gold." The Goldglan for men is recommended for the man who "doesn't realize that he is not paying his wife the attention he formerly did"; the Goldglan for women is to "mold the soft curves" and "give her ripe, red lips, rosy cheeks and the fascinating charm of femininity."

Home Health Bureau, 538 South Clark Street.—This name seems to have been created for the purpose of pushing the "Norgol Tablets," one of the various nostrums also sold by the Advisory Service Bureau.

George R. Douglass, 527 South LaSalle Street.—The advertising under this name states that Douglass is a pharmaceutical chemist and that a few years ago he found that he was losing his sexual vigor. One day a "pale, elderly man" handed him a prescription that had been written by an "eminent gland specialist." Douglass filled it and he claims that in a week's time, when the man came back to have it refilled, the patient looked much better. He, therefore, studied the prescription, improved on it, and prepared one for his own use. The alleged result is best quoted in Douglass' own words:

"Well, sir, no man could have been more surprised than I was when, a few weeks later, I found myself stepping around about as spry as ever, taking a renewed interest in my work, full of pep and a return of manly vigor that made me feel as frisky as a young colt let out on green pasture. No longer did I experience a feeling of shame at going home after the day's work was done and meeting the look of half pity, half reproach in my wife's eyes."

All of this leading up to the exploitation of another aphrodisiac, "Glantone," which, like Goldglan, put out by the Medical Aid Bureau, comes in two forms—for men and women, respectively.

Medico Electro Company, 536 South Clark Street.—This concern purports to have a "Medical Director," one George Lotz, M.D., an individual whose past professional history need not be gone into. The Medico Electro Company sells the

rather imposingly-named "Infra-Red Ray Prosto-Therm." The device is supposed to be for the cure of hemorrhoids and prostate trouble. It consists essentially of two aluminum rectal applicators; one perforated on one side only (for treating the prostate), the other (for piles) perforated all around. Into this is slipped a small electric light bulb, which is connected with the lighting circuit, through a small rheostat that controls the amount of current. There also comes with the device a tube of "Prostone Medicated Ointment." The advertising booklet for this device features what is called "Our Irrevocable Guarantee," which is signed "N. A. Carbery, Vice President" of the Medico Electro Company. The "guarantee" states that if the purchaser is not satisfied after ten days' use, the device can be returned and the money will be refunded. The company also guarantees that to the best of its knowledge and belief, its device is the only one that "generates radiant, penetrating infra-red rays for the home treatment" of prostatic trouble or piles. This indicates that the knowledge and belief of the company is considerably limited. There are other quackish devices on the market of a similar character which also generate heat, which is all, of course, that infra-red rays mean.

POLYGLANDOL AND POLYGLANDINE

So much for this multi-named mail-order quackery operated from Suites 973-979 inclusive in the Rand-McNally Building. Some time ago a correspondent in the East reported that an old gentleman in Springfield, Mass., had sent for some Polyglandol from the Advisory Service Bureau, which was duly delivered through the United States mails. The postman put the Polyglandol package through the letter-slot in the door and a valuable English bull terrier got hold of it and chewed up the Polyglandol. Instead of being filled with pep and libido he promptly turned up his toes and went to his reward. Looking into the matter further, we received a report that was sent by a reputable laboratory to an agent for the Massachusetts Society for the Prevention of Cruelty to Animals. The report dealt with the examination conducted on the body of the bull terrier just referred to. Without giving the report in detail, it may be stated that it was to the effect that the contents of the dog's stomach were tested for alkaloids and mineral poisons, and there was extracted a small quantity of a bitter, alkaloidal-reacting substance, the nature of which was not determined, because there were also extracted from the stomach and upper intestine over 2½ grains of arsenic, with heavy traces of the same poison in the kidneys. The analyst expressed the opinion that there was no question in his mind that the dog had died primarily from arsenical poisoning!

In view of this, the Bureau of Investigation obtained some unopened, original packages of Polyglandol and Polyglandine. These were turned over to the A. M. A. Chemical Laboratory, with the request that they be analyzed. The chemists' report follows:

LABORATORY REPORT

"One original package of each 'Polyglandol-Superior Gland Tonic for Men' and 'Polyglandine-Superior Gland Tonic for Women' (Advisory Service Bureau, Chicago, distributors) were submitted to the A. M. A. Chemical Laboratory by the Bureau of Investigation for examination.

"*Polyglandol.*—The package contained 88 blue pills; the average weight of each pill was 0.346 Gm. (approximately 5½ grains), with coating; the medicament alone was 0.20 Gm. (approximately 3 grains); on drying, a marked odor suggestive of phosphorus (P) was noted. No statement as to the contents of the pills was found on the trade package.

"Microscopic examination indicated the presence of animal and vegetable tissue, the former predominating. Qualitative tests indicated the presence of calcium, phosphorus, carbonates, an emodin-bearing drug, an alkaloidal substance suggestive of yohimbine, traces of gold in an extremely minute quantity, iron (probably obtained during comminution), magnesium, chlorides and sulphates. Arsenic was not found.

"From the tests performed, it appears that Polyglandol contains animal tissue, phosphorus, yohimbine, a trace of a gold compound along with a binder, such as calcium carbonate (chalk) and sugar. In this respect it resembles the so-called aphrodisiac pill.

"*Polyglandine.*—The package contained 93 pink pills; the average weight of each pill was 0.333 Gm. (approximately 5¼ grains) with coating; the medicament alone was 0.219 Gm. (approximately 3 grains); on drying, a slight alliaceous (garlic-like) odor was noted. No statement as to the contents of the pills was found on the trade package.

"Microscopic examination indicated the presence of animal and vegetable tissue and starch. Qualitative tests indicated the presence of calcium, iron, carbonate, traces of magnesium, chlorides and sulphates. Arsenic and phosphorus compounds were not found.

"From the tests made, it appears that Polyglandine contains essentially animal and vegetable tissue, also corn-starch and iron, along with a binder, such as calcium carbonate (chalk). It resembles somewhat one of the numerous so-called iron-tonic pills."

Evidently the Polyglandol examined in the A. M. A. Chemical Laboratory differed in composition from the Polyglandol that the misguided bull terrier devoured. It is conceivable, of course, that Mr. Ellenbaum and his associates had received some inkling of the dangers of promiscuously distributing through the United States mails such potent drugs as arsenic and decided that discretion was the better part of valor. In any case, it would seem that the chief indictment against the entire business run by Ellenbaum *et al.*, is the suggestiveness and general salaciousness of the advertising, together with the wholly unwarranted claims leading sexual hypochondriacs to believe that they can be rejuvenated by the various named nostrums, put out by the equally various named concerns.

Correspondence

STAPHYLOCOCCUS FILTRATES IN STAPHYLOCOCCIC INFECTIONS

To the Editor:—The use of parenteral injections in human beings of the products of pathogenic microbes with the object of inducing immune states against such organisms is still in its infancy. Notable examples are the phytines (fungus products), streptococcus scarlatinal and erysipelas toxins, and Klebs-Loeffler bacillary toxin. One of the newest is perhaps the products of *Staphylococcus aureus.*

It has been known for many years that *Staphylococcus aureus* and *albus* produce toxins. Von Lingelsheim in 1899 showed that the filtrates of *Staphylococcus aureus* had a necrotizing effect on rabbit skin, subsequently confirmed by others and especially by Parker in 1924, whose work actually paved the way for measuring the toxicity of filtrates from different strains.

The first attempt, so far as we are aware, to induce an immune state in man with the filtrable products of *Staphylococcus pyogenes-aureus* was made in 1926. The results were read in Philadelphia, May 24, 1927, before the Eastern Chapter of the American Society of Bacteriologists, and subsequently published in THE JOURNAL (Greenbaum, S. S., and Harkins, M. H.: Staphylococcus Filtrates in Chronic Staphylococcic Pyodermas, THE JOURNAL, May 26, 1928, p. 1699). Pilot and Afrenow (THE JOURNAL, Sept. 17, 1927, p. 939) also at about the same time and later published reports of somewhat similar studies.

The writer and his colleague avoided the term toxin since it was evident that the filtrate of an organism growing in a liquid medium contained not only its own excretory products (so-called exotoxins) but those substances the result of changes produced in the medium by the growing organism. For this reason, filtrate appeared to be the preferable term, although we have more recently used the term "staphylocine." The use of the ending "ine" to designate a filtrate was originally introduced into medical literature by Plato, who in 1902 described and used tricophytine, a filtrate of the *Tricophyton* fungus. A monovalent filtrate whose strength or toxicity was exceedingly

high when injected intracutaneously in a susceptible human being was used and photographic evidence of this is shown in the original report. The latter discussed: (*a*) human cutaneous tests for susceptibility to staphylococcus infections; (*b*) induced local and general immunity; (*c*) cutaneous tests before and after immunization, and (*d*) therapeutic results in a small group of patients, two of whom (patients with furunculosis) achieved a complete therapeutic result.

The recent statement therefore by Dr. E. C. Weisse (Staphylococcus Toxin in the Treatment of Furunculosis, THE JOURNAL, August 2, p. 324) that "in 1928, Greenbaum and Harkins reported inconclusive results from the use of staphylococcus filtrates; but as their filtrate had little toxicity for rabbit skin it could not have contained any considerable amount of the toxin described here" requires a certain amount of correction. Our results were far from inconclusive and our filtrate was of excellent quality. Furthermore, since then we have from time to time reported on the progress of our studies in man with this particular filtrate (Philadelphia Dermatological Society, Feb. 1, 1929; *Arch. Dermat. & Syph.* **20**:245 [Aug.] 1929).

The completed experimental aspects of the staphylococcus filtrate was presented, Feb. 24, 1930, before the Section on General Medicine of the College of Physicians, Philadelphia (A Study of the Immunizing Properties or Staphylococcus Aureus Exotoxin, which is shortly to appear in the *Archives of Dermatology and Syphilology*).

The results obtained by Dr. Weisse are therefore confirmatory of the clinical results already reported by us. We are completing a more extensive study of these filtrates in staphylococcus infection in general—both skin and other organs.

It may be stated at this time that:

1. Staphylococci extremely virulent for human beings may be partially so or not at all for rabbits and this is similarly true for their filtrates. The rabbit skin test is not always infallible.

2. Strong staphylococcic filtrates can be used by parenteral injection in human beings with perfect safety.

3. These filtrates are decidedly helpful in the presence of staphylococcic infections only when used as an adjunct to the usual treatment.

4. The immunity they induce is of short duration, sometimes complete, sometimes partial and occasionally not at all possible.

5. Autogenous filtrates, although preferable, may be advantageously supplanted by polyvalent stock filtrates of adequate known toxicity.

These filtrates are being and have for some time been used in our private practice and in the practice of Dr. J. Frank Schamberg and of Dr. John A. Kolmer with favorable results.

SIGMUND S. GREENBAUM, M.D.,
MALCOLM HARKINS, V.M.D.,
Research Institute of Cutaneous Medicine,
Philadelphia.

HAZARD FROM LID OF SCREENED BED

To the Editor:—I have recently passed through the bitterest experience of my life in losing a year old grandchild. She was strangled by catching her head under the lid of a screened bed. The need of an automatic lid fastener for such beds is imperative, and I have taken every means I can think of to urge this point. I have written to manufacturers of beds and to child specialists, and I am now writing you hoping that it may be possible to publish at least a word of caution in your journal. The need of an *automatic* fastener seems to me very great—one which would securely fasten the lid whether the nurse remembered it or not.

GRETA B. MILLIKAN,
1640 Oak Grove Avenue,
Pasadena, Calif.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

METHANOL — METHYL ALCOHOL

To the Editor:—In THE JOURNAL, Dec. 7, 1929, there appeared a question by Dr. Murray on the danger of work with denatured alcohol. The answer to this question stressed the hazard connected with the use of methanol. Large quantities of synthetic methanol are now available and being used in the manufacture of paints, shellacs, lacquers and antifreeze mixtures. This synthetic methanol is identical with wood alcohol and it would have the same toxic properties and, therefore, must have precisely the same effect on the human system. If this is correct, it seems to me that something should be done to prevent increased industrial hazard through the lack of knowledge that these two products are the same and also to protect the general public. I should appreciate it if you would give me your opinion as to the advisability and necessity for further study of what might become a very serious problem. If there is danger in the use of synthetic methanol, it would certainly be wiser to adopt preventive measures before the damage is actually done.

WILLIAM J. HALLER, M.D., Brooklyn.

ANSWER.—Methanol is a term for wood alcohol that came into wide use about 1923, largely at the instigation of the wood alcohol producers and also due to active propaganda of the American Chemical Society. It was maintained that, so long as the term "alcohol" was applied to this substance, considerable numbers of poisonings and deaths would take place as the result of the belief that this alcohol was drinkable. Perhaps, too, the wood alcohol manufacturers had in mind that in leaving behind the term "wood alcohol" they were likewise dropping the bad reputation for the toxicity long possessed by this chemical. Methanol is in many ways a more appropriate term than wood alcohol, as much of this substance is made synthetically, wholly independent of wood as a source. It is the scientific name for methyl alcohol, just as ethanol is the scientific term for ethyl alcohol.

Methyl alcohol, wood alcohol, methanol, synthetic methanol, wood naphtha and wood spirit are all names for the same substance. Synthetic methanol (methyl alcohol) is free from impurities but is no less toxic than natural wood alcohol (methyl alcohol) under any name, except for the fact that impurities in the natural product may influence toxicity. For a long time, the producers of wood alcohol cherished the belief that a pure product was nontoxic. This appears to be without foundation.

There are good reasons to believe that at the present time not only methyl alcohol (methanol) but a variety of other toxic substances are put out for industrial and home use without adequate information as to the potential harm involved. The use of trade names often conceals the identity of the true substances involved. The onus of the situation does not entirely rest on the manufacturer, since the industries using the product have some responsibility in properly educating the workmen as to the nature of harm and means of protection against exposure.

Efforts to better this situation should not be limited to methyl alcohol (methanol), but should be all inclusive. Products containing toxic materials that are going into homes and factories should be plainly labeled, indicating the toxic ingredients and the conditions under which harm may result. In some instances it may develop that mere labeling is insufficient, and that actual limitation of the application of some substances is just. The hazard of using methyl alcohol as an antifreeze mixture in automobiles was discussed in an editorial entitled "Another Gas Hazard" in THE JOURNAL, August 30.

RADIUM IN UTERINE HEMORRHAGE

To the Editor:—In a case of severe uterine hemorrhage occurring at intervals from one to six weeks, in a woman, aged 45, with no ulcerations of the cervix, but with hemorrhages that are severe and without pain or tenderness, should radium be used when drugs and packs fail? What amount of radium and for how long? Would a charge of $100 be excessive with the husband on a moderate income?

R. F. STEELE, M.D., Chicago.

ANSWER.—This patient should have a curettement without any delay and the material obtained should be examined by a competent pathologist. The history of severe, irregular hemorrhages is suggestive of carcinoma of the body of the uterus. In spite of the normal condition at the external os, cancer of the cervix may be present. Regardless of the true diagnosis, drugs or packs should not be used because the longer the delay in performing a curettement, the worse the prognosis if cancer is present. When the curettement is performed, 50 mg. of

radium should be inserted into the uterine cavity and left there for at least twenty-four hours. If, however, at the time of the curettement definitely cancerous tissue is found in the body of the uterus and not in the cervix, it is best to perform an immediate panhysterectomy either vaginally or abdominally. If cancer of the cervix is found it is best to apply 50 mg. of radium for forty-eight hours. Most authorities agree that, for cancer of the body of the uterus, operation is the treatment of choice whereas, for carcinoma of the cervix, radium is more advantageous. The patient will benefit considerably if she is immediately placed under the care of a gynecologist who knows how to apply radium properly as well as how to operate. Every patient with cancer should be carefully examined frequently for the rest of her life, to detect a recurrence. For performing a curettement and applying radium, a charge of $100 for a person on a moderate income might be considered high unless this fee includes the rental of the radium as well.

SUBARACHNOID INJECTIONS

To the Editor:—What is this that I have been reading about "giving injections intrathecally?" Please explain this to me.

JOSEPH HALTON, M.D., Sarasota, Fla.

ANSWER.—An intrathecal injection is one given under the coverings of the spinal cord (theca spinalis): in other words a "subarachnoid injection."

CAULIFLOWER EAR

To the Editor:—A wrestler came under my care three weeks ago for treatment of a typical "fresh" cauliflower ear sustained in a match the night previous. I took a fine needle and drew off the serosanguineous fluid, and then with small compresses built up inside and behind the ear and bound it tightly, hoping to stave off further exudation. Within forty-eight hours, however, the fluid had accumulated in as large a quantity as when first observed. Since that time I have been aspirating each two or three days but cannot notice any benefit. Will you please advise as to further treatment? G. C. GARDNER, M.D., La Junta, Colo.

ANSWER.—The treatment was planned correctly but apparently failed to apply and maintain sufficient pressure over the ear. One should remove all blood or exudate by aspiration, or if a clot has formed it should be evacuated by an incision followed by a few interrupted fine silk sutures. These sutures should be removed on the fourth day. The application of pressure sufficient to prevent further exudation must be made. One may use firmer pressure without danger of ischemia by the use of fluffed gauze or sea sponges over a sterile gauze dressing. The bandage over the pressure pads should encircle the head.

FEVER AFTER TONSILLECTOMY

To the Editor:—A girl, aged 4 years, began to have a temperature of 104 F. eleven days after tonsillectomy. She has had an undulating temperature of between 100 and 104 for ten days. Roentgenograms of the mastoid and chest are normal; the urine is negative for pus cells and albumin. The white blood count when last taken was 19,000. Agglutination for undulant fever is negative. The throat was slow in healing but is practically healed now. A slight cervical adenitis is present on palpation. Can you suggest any treatment that might be of value in this case? Please omit name. M.D., South Dakota.

ANSWER.—Treatment in such a case will necessarily need to be expectant. Sponges and possibly an ice collar should be used to control the temperature. If any antipyretics were used, one would rather favor the salicylates. Full elimination should be encouraged. The diet should be liquid; in fact, liquids by mouth should be forced in order to keep up the normal water balance. The possibility of an abscess or acute endocarditis must be considered.

EXANTHEM DURING MENSTRUATION

To the Editor:—A Jewish girl, aged 22 years, has this phenomenon accompanying her menstrual period: Small papules appear usually on the extensor surfaces of the legs, rapidly advancing to vesicles and then to large blebs about the size of a grape. The serum is usually clear but sometimes turbid and gelatinous. They have never been noted to occur in the interval between the menstrual periods. Kindly suggest etiology and treatment. Please omit name. M.D., Ohio.

ANSWER.—Menstruation is a normal physiologic function. In spite of increased demands on the individual during this time by various neurocirculatory and other actions on the system, and especially on the generative organs, no morbid effects should occur in normal persons. In those, however, in whom, through organic or functional disorders, resistance is lowered, such manifestations may occur during the menstrual period, among others diverse exanthems. In the case presented the diagnosis herpes is the most probable. In the treatment a thorough personal and family history and the correction of any abnormalities disclosed through a thorough examination of the patient are indicated. Otherwise soothing local applications, as calamine lotion, may be used, and internally solution of potassium arsenite in doses of 0.12 to 0.18 cc. three times a day for two weeks before onset of menstruation may prove beneficial.

VALUE OF LITTLE TOE—USE OF ABDOMINAL BAND

To the Editor:—1. What rôle does the little toe play? I have a patient, a woman, aged 25, in whom the little toe of the right foot is so twisted that she almost walks on the toe nail. I have been considering the advisability of amputating this member. Will the latter procedure have any harmful effect on walking. 2. May the abdominal band as used on new-born infants be discarded or rather dispensed with, or is it necessary? Several physicians of my acquaintance no longer use this article in the obstetric practice. Please omit name. M.D., New York.

ANSWER.—1. The little toe plays an important part in walking. The proper attitude in walking is weight on the heel and up on the toes with a spring in the step. However, if amputation or partial amputation is thought advisable because of the twisted condition of the toe, the head of the fifth metatarsal should be removed by oblique osteotomy. The removal by this method should not have a harmful effect on walking.

2. The use of the abdominal binder is more or less arbitrary. In underdeveloped and undernourished infants its use seems well justified. There is rather a general tendency to discard these binders after the first month or six weeks in the well developed infant unless there are especial reasons to the contrary. Any tendency to hernia of the umbilicus is best cared for by the proper application of adhesive tape. This is possible as soon as the stump is completely healed.

OPERATION TO OVERCOME STERILITY AFTER REMOVAL OF TUBES

To the Editor:—A woman, aged 30, had both tubes removed seven years ago. She desires now to give birth to a baby above everything else in the world. The ovaries function normally. I read that Professor Tuffier in Paris and some German surgeons succeeded through autoplastic ovary transplantation to eventuate normal pregnancy and childbirth. I would appreciate your giving to me the names of surgeons in this country who had similar experiences. Please omit name. M.D., Ohio.

ANSWER.—There is no record of a full term pregnancy and childbirth in this country following autoplastic ovary transplantation into the uterus in the absence of fallopian tubes. The operation has been performed once or oftener in nearly all the larger gynecologic clinics in this country. Dr. William Graves of Boston reported a pregnancy with subsequent abortion. The consensus among American gynecologists is that the procedure is futile. If the patient under consideration was operated on by amputation of the tubes without excision of the cornual ends, her chances for pregnancy should consist in a plastic approximation of one or both ovaries to the tubal stump, together with a cuff operation on the stump, if a patency test shows that the stumps are closed.

ANTISEPTIC TO PREVENT SPORES IN COUNTING SOLUTION

To the Editor:—Can you tell me what antiseptic I can use in a 0.5 per cent acetic acid solution which will prevent the growth of spores? I use this solution for counting white cells. Gentian violet is the best thing I have discovered so far, but it is inconvenient to me because of the color.

A. W. PATTERSON, M.D., Fonda, Iowa.

ANSWER.—Thymol or camphor would be suitable for this purpose. One gram, or a piece about the size of a lima bean, may be added to 1,000 cc. of solution. Filtering about once every two weeks will keep the solution clear without the use of antiseptics.

FOOD ALLERGY

To the Editor:—A woman, aged 52, has had occasional attacks of giant urticaria for the past five months. These generally occur in association with a gastro-intestinal disturbance characterized by pain, dull in character, and a sense of fulness in the right epigastrium and considerable belching of gas. Roentgenograms of the gastro-intestinal tract and gallbladder are negative, as are also protein sensitization tests, and examination generally except for occasional tenderness in the gallbladder region. Kindly discuss and suggest treatment. Please omit name.

M.D., Michigan.

ANSWER.—This case is one of food allergy, as shown by the attacks of pain and giant hives or urticaria. The same food that causes the pain undoubtedly brings on the urticaria. In most patients, also, pain in the abdomen is accompanied by

nausea, vomiting and diarrhea; all of these need not occur. Frequently the pain is so severe and so located as to cause confusion in diagnosis and many gallbladders and appendixes have been needlessly sacrificed, as shown by recurrence of symptoms after the operation. Food allergy is afebrile in most cases, usually gives a history of many similar attacks, and frequently has one or more other allergic manifestations, such as asthma, hay-fever or eczema. There is often an allergic family history. Tenderness may be present but rigidity is rare. Catharsis relieves and ephedrine and belladonna are also quite helpful.

The fact that protein sensitization tests were negative does not rule out allergy because: 1. The tests may not have been done completely. There are 250 or more different materials that should be tried, especially foods; and if cutaneous tests are negative, intracutaneous tests are indicated. 2. It has long been known that the skin is frequently negative to testing when the mucous membranes are sensitive. The skin is not necessarily an indicator, and even when positive tests are obtained they must be backed by clinical trial.

The proper procedure then is to make sure that complete skin testing is done and then to try food elimination methods. One can either begin with some simple food, such as milk, for two or three days and then, if no disturbance occurs, add one new food at a time, allowing a day or two between additions, and leaving eggs and wheat for the last, as they are common offenders; or one can start with a full diet and gradually cut out one food at a time.

The first method is probably the better. When the offending food is found, it should be rigidly excluded from the diet.

MORPHINE POISONING

To the Editor:—I should be glad to have answers to the following questions relative to fatal morphine poisoning by hypodermic injection. 1. About how soon after administration would a dose of 2 grains produce the first symptoms, produce relaxation and unconsciousness, and cause death, in a person not accustomed to the drug? 2. Would these intervals be proportionately shorter after the use of double that dose? 3. About how long after death would contraction of the pupils persist? 4. In what organs would the largest part of the poison be found after death? Is its distribution much different from that obtaining in morphine poisoning by oral administration? Please omit name. M.D., Arizona.

ANSWER.—1. Symptoms after hypodermic injection usually begin within ten minutes, and death usually does not occur for several hours, though it has taken place as early as within forty-five minutes.

2. Yes.

3. The condition of the pupils after death is not constant. Sometimes they remain contracted. More frequently they are of ordinary size or dilated, the contraction usually giving way to dilatation in the final stage, even before death.

4. The liver and the intestinal contents. There is probably not much difference in the distribution after hypodermic and oral administration, for as much as 66 per cent of it is excreted by the feces after hypodermic injection.

FACIAL SPASM

To the Editor:—A white man, aged 51, married, a clerical worker, after putting on new bifocal glasses seven years ago and while working under great pressure at a new job, suddenly felt a twitching of the right side of the face from the eyebrow to the nose to the corner of the mouth, cheek and down on the skin of the neck. The twitching has never ceased since, except in sleep and if he slowly and steadily turns his head. It is made worse by physical exertion or mental excitement. He has had no operations, serious accidents or major illnesses. He had fourteen teeth extracted recently; the rest are normal on roentgen and vital tests. His wife has never been pregnant. He always has had premature ejaculations. He states that he has not had syphilis or the symptoms of it. He is well developed and nourished. His height is 67½ inches (170 cm.); his weight, 183 pounds (83 Kg.). The entire right side of the face, from and including the right upper lid down to and including the right platysma myoides, twitches every four to ten seconds, and at a faster rate if he is excited. Psoriasis, a bulging left inguinal floor, a moderately hypertrophied prostate, and small and very soft testicles are the only positive observations. Laboratory Wassermann and urine tests are negative. The blood pressure is 136 systolic and 92 diastolic. Is the diagnosis of a "tic" psychogenic in origin tenable? If so, what treatment is indicated? R. J. MILLEMANN, M.D., Hollis Park Gardens, L. I.

ANSWER.—From the description it is probable that this is a case of essential facial spasm. In that event no muscles should be involved except those innervated by the facial nerve, and the spasm should be similar to that produced by faradization of the nerve. If severe, the eye should be wholly or partly closed during the attack and the corner of the mouth drawn toward the ear. It is almost inconceivable that a psychogenic tic should limit itself to an area supplied by a single motor nerve. The only successful treatment of essential facial spasm consists in injection of the facial nerve at the stylomastoid foramen with dilute alcohol. This should produce a transient facial paralysis. The spasm often stays away for years, while the paralysis may last only a few weeks.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 7 and 8, 1930. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

COLORADO: Denver, Oct. 7, 1930. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

CONNECTICUT: New Haven, Oct. 11, 1930. Basic Science. Address State Board of Healing Arts, 1895 Yale Station, New Haven, Conn.

GEORGIA: Atlanta, Oct. 14-16, 1930. Sec., Dr. B. T. Wise, Americus, Ga.

IDAHO: Boise, Oct. 7, 1930. Comm., Hon. F. E. Lukens, Boise, Idaho.

ILLINOIS: Chicago, Oct. 14-16, 1930. Supt., Mr. P. B. Johnson, Springfield, Ill.

MICHIGAN: Lansing, Oct. 14-16, 1930. Sec., Dr. F. C. Warnshuis, 1010 Macabee Bldg., Detroit, Mich.

MINNESOTA: Minneapolis, Oct. 7 and 8, 1930. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis, Minn. Reg. Minneapolis, Oct. 21-23, 1930. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul, Minn.

MONTANA: Helena, Oct. 7, 1930. Sec., Dr. S. A. Cooney, Power Block, Helena, Mont.

NEW MEXICO: Santa Fe, Oct. 13-14, 1930. Sec., Dr. W. T. Joyner, 20-21 First National Bank Bldg., Roswell, N. M.

NEW YORK: Albany, Buffalo, New York City, Syracuse, Sept. 15-18, 1930. Mr. H. J. Hamilton, State Education Bldg., Albany, N. Y.

RHODE ISLAND: Providence, Oct. 2 and 3, 1930. Dir., Mr. L. A. Round, 319 State Office Bldg., Providence, R. I.

WISCONSIN: Basic Science, Madison, Sept. 20, 1930. Sec., Prof. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

WYOMING: Cheyenne, Oct. 6, 1930. Sec., Dr. H. W. Hassed, Capitol Bldg., Cheyenne, Wyo.

Indiana June Examination

Dr. W. R. Davidson, secretary of the Board of Registration and Examination of Indiana, reports the written examination held at Indianapolis, June 17-19, 1930. The examination covered 16 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and twenty-four candidates were examined, 123 of whom passed and 1 failed. The following colleges were represented:

PASSED			
College		Year Grad.	Per Cent
Loyola University School of Medicine		(1930)	84.6,* 86.6*
Northwestern University Medical School		(1930)	85.7, 87.7
Rush Medical College		(1930)	88.8
University of Illinois College of Medicine		(1930)	86.1
Indiana University School of Medicine		(1930)	77.6, 80.4, 80.7, 80.7, 81, 81.2, 82.4, 82.4, 82.6, 82.6, 82.6, 83, 83, 83.2, 83.2, 83.2, 83.3, 83.5, 83.5, 83.6, 83.7, 83.9, 83.9, 84.2, 84.2, 84.2, 84.3, 84.3, 84.4, 84.5, 84.5, 84.6, 84.7, 84.7, 84.8, 84.8, 84.8, 84.8, 84.9, 85, 85.1, 85.2, 85.2, 85.2, 85.2, 85.3, 85.4, 85.5, 85.5, 85.6, 85.6, 85.7, 85.9, 85.9, 85.9, 86, 86, 86.3, 86.3, 86.4, 86.5, 86.5, 86.5, 86.5, 86.6, 86.7, 86.8, 86.9, 87, 87, 87.2, 87.2, 87.3, 87.3, 87.5, 87.6, 87.7, 87.7, 87.7, 87.8, 88.1, 88.2, 88.2, 88.3, 88.3, 88.4, 88.4, 88.4, 88.6, 89, 89, 89.1, 89.2, 89.3, 89.3, 89.6, 90, 90.2, 90.5, 91.2
Johns Hopkins University School of Medicine		(1930)	82.8
Boston University School of Medicine		(1925)	84.2
University of Michigan Medical School		(1929)	87.1
St. Louis University School of Medicine		(1929)	85.6
Washington University School of Medicine		(1926)	88.4
University of Cincinnati College of Medicine		(1930)	88.1†
University of Oregon Medical School		(1929)	89.1
University of Pennsylvania School of Medicine		(1930)	84.4
University of Wisconsin Medical School		(1928)	88
McGill University Faculty of Medicine		(1929)	84.9
Osteopaths		87.4, 88.5, 88.6, 89.1,	89.2, 89.3, 89.6

FAILED		
College	Year Grad.	Per Cent
Osteopath		77.8‡

* This applicant has completed four years of medical work and will receive an M.D. degree on completion of one year's internship in a hospital.

† This applicant has received an M.B. degree and will receive an M.D. degree on completion of one year's internship in a hospital.

‡ Failed in two subjects.

Delaware Reciprocity Report

Dr. Harold Springer, secretary of the Medical Council of Delaware, reports six physicians licensed through reciprocity with other states. The following colleges were represented:

LICENSED BY RECIPROCITY			
College	Year Grad.		Reciprocity with
University of Maryland Sch. of Med.	(1912)	(1920) (1928, 2)	Maryland
Washington University School of Medicine		(1928)	Oklahoma
Jefferson Medical College		(1928)	Penna.

Book Notices

MEDICAL HISTORY OF MICHIGAN. Volume I. Compiled and Edited by a Committee, C. B. Burr, M.D., Chairman, and Published under the Auspices of the Michigan State Medical Society. Cloth. Pp. 829, with 40 illustrations. Minneapolis: The Bruce Publishing Company, 1930.

The archives of the history of Michigan are replete with episodes and biographies which form authentic sources for a medical history. In 1926, Dr. F. C. Warnshuis, secretary-editor of the state medical society, transmitted President Jackson's appointment of a committee to compile a medical history of Michigan with Dr. C. B. Burr of Flint, chairman. Eleven of the chapters of this book were contributed by Dr. Burr; the remaining chapters were written by Drs. Dempster, Coller, Sawyer and Guy L. Kiefer.

The historical sketch of Michigan's pioneer doctors reveals men of courage who bore the torches as did the preachers and teachers. Though medicine was their calling, they were leaders in all constructive movements. Many are the histories of hardships and privations. By their ingenuity they overcame the handicap imposed by lack of hospitals and nurses and were worthy forerunners of the Michigan men of today.

Dr. Henry B. Belisle seemed to have been Detroit's first "chirurgeon," who came in with the Cadillac party in 1701; next came Jean Babtiste Forestier in 1713; then came Jean Chapoton, who was a surgeon in the French army ordered to Fort Pontchartrain and who died a few days after the surrender of Fort Detroit to the British in 1760.

The first of the American garrison doctors in Michigan (1787) was William McCoskry, who later followed General Anthony Wayne's legionary army in its slow progress of more than two years down the Ohio River and across the country to the Maumee River, where, in August, 1794, in the Battle of Fallen Timbers, the Indians were for the first time so badly defeated that they recognized the United States government.

A good depiction of the village doctor of the early days is that of Dr. J. H. Hascall, who, "hunched atop his gray gelding, and equipped with leathern saddlebags stuffed with everything exacted by the more advanced science of the current medical monthlies," would ride over the entire county to reach his patients. Many times he would be compelled to leave his horse and wade through stagnant mires to reach some pioneer cabin in the unbroken wilderness.

Of greater importance in the annals of medicine is Michigan's pioneer in medical research, William Beaumont, a surgeon in the United States Army, stationed at Mackinac Island. In 1822 occurred the event which made Beaumont famous.

Throughout the pages of this history appear anecdotes and brief biographies of hundreds of pioneers and early Michigan physicians drawn from authentic historical sources which, fortunately, are unusually complete. Close-ups are given concerning such men as Hurd, Christian, Longyear and Inglis. A review of the Detroit Gynecological Society is given, and an entire chapter is devoted to Theodore A. McGraw, the great medical teacher, surgeon and soldier who became a national figure because of his pioneer work in abdominal surgery, especially intestinal anastomosis. In 1891 his reputation became international because of his use of the elastic ligature in surgery of the intestines.

If there is any honor in being first, the credit must go to Michigan as being the pioneer state to recognize the importance of professional education in medicine. The University Medical School was founded in 1850, although the University of Michigan had been a reality since the year 1837. The authors describe at length the men who figured in making this among the first of a half dozen leading medical schools of this continent. Linked inseparably with the university was Dr. Victor C. Vaughan, of whom Dr. Hubert Work, President of the American Medical Association in 1920, said, "You all know that Dr. Vaughan is already known as the greatest man in American medicine in Michigan." Other names which emblazon the way for Michigan medical greatness are Novy, Huber, Warthin, Edmunds, Weller and Charles B. de Nancrede.

A remarkable feature of this volume is the completeness with which collaborating human activities are dovetailed into the strictly medical phases of Michigan history. Not only is comprehensive biography interspersed with interesting and elucidating anecdotes, but also a cross-section of the problems which confronted the pioneers and with which the physician of the present day does not have to cope. The part played by prevailing diseases, the havoc wrought by epidemics, the armamentarium of early doctors and their adoption of diagnostic aids and therapy, which forms a document paralleling the experiments of medical men in all sections of our country, are worthy of any man's reading.

This book is much more than a presentation of facts. Such a recital of achievements of early medicine compels the interest of any reader who wishes to know something of the times in which the early men of medicine lived, the conditions they had to meet, and how they met them.

HANDBUCH DER PATHOGENEN MIKROORGANISMEN. Herausgegeben von W. Kolle, R. Krause und P. Uhlenhuth. Lieferung 42, Band VII: Verschiedene als pathogen angesehene Spirochäten. Von Prof. Dr. P. Mühlens. Die saprophytischen Spirochäten. Von Dr. St. Zurukzoglu. Malaria. Von Prof. Dr. R. Ruge. Chemotherapie der Malaria. Von Prof. Dr. G. Giemsa. Third edition. Paper. Price, 40 marks. Pp. 753-1078, with 95 illustrations. Jena: Gustav Fischer, 1930.

In this issue there are two detailed, comprehensive, well illustrated articles on spirochetes, one on the varieties usually regarded as pathogenic, the other on the saprophytic species. Each comprises about fifty pages. In a treatise already swollen to quite unmanageable financial dimensions the assignment of so much space to saprophytic spirochetes may be questioned, interesting as these organisms may be to the pure biologist. We have previously noted a similar disregard for proportion in other issues and are forced to believe that editorial pruning and selection should have been more rigorously exercised. Ruge's article on malaria is clearly and systematically written with much display of boldface type and ten fine plates. The discussion of the part played by various species of *Anopheles* in malaria transmission in different localities will seem quite inadequate to many readers. There is no mention of P. F. Russell's method of identifying the several kinds of *Anopheles* larvae by means of the larval hairs.

THE PHYSIOLOGY OF ORAL HYGIENE AND RECENT RESEARCH WITH SPECIAL REFERENCE TO ACCESSORY FOOD FACTORS AND THE INCIDENCE OF DENTAL CARIES. By J. Sim Wallace, D.Sc., M.D., L.D.S., Lecturer on Preventive Dentistry, King's College Hospital. Second edition. Cloth. Price, 10/6. Pp. 228, with 7 illustrations. London: Baillière, Tindall & Cox, 1929.

This book is constructed on the basis of a series of lectures delivered to American audiences in 1926 and 1927, including the material found in the seventy-six page first edition. The opinions may be summed up in one quotation: "It is evident, therefore, that mastication of fibrous food is conducive to dental hygiene." This may be elaborated by a second quotation: "As regards the prevention of tartar, pyorrhea and the irregularities of the teeth which predispose to oral sepsis, the main point to be attended to is the providing of food which will stimulate the self-cleansing processes, rub or scour the teeth and ensure the normal pressure strains during mastication." In Wallace's opinion, the effect of vitamins has been greatly overestimated, the use of milk after the second year is unwise, the overuse of cane sugar predisposes to dental disease, and enamel once fully formed remains constant in composition. These notions, particularly the first two, were severely criticized and these discussions are reported in some detail.

DIE KLINIK DER TUBERKULOSE ERWACHSENER. Von Professor Dr. Wilhelm Neumann, Privatdozent an der Universität Wien. Mit einem Anhang die Röntgendiagnose der Lungentuberkulose. Von Dr. Felix Fleischner. Second edition. Paper. Price, 36 marks. Pp. 484, with 221 illustrations: Vienna: Julius Springer, 1930.

The painstaking character of the author's previous works would naturally lead the reader to expect a continuation of his attention to the "little things" of chest diagnosis. A perusal of the book here presented has not been disappointing in this regard. The author, however, admits that certain critics have accused him of a too excessive attention to detail. In defense, as it were, the saying of Bumke is quoted: "In every field of research are noted at first only the grosser or more obvious

facts, while the finer matters of detail are only discovered later when the powers of observation have become much more sharpened." If this book does nothing else, it insists on the closest attention to everything that can lead to a correct diagnosis. Neumann, in his preface, cites the frequent error of physicians who, finding a slight rise in pitch over one apex, concentrate on that slight observation while they fail to recognize signs of advanced tuberculosis of the lungs in the stage of temporary quiescence, obvious to the trained eye, dismissing what they find as "bronchitis." It is comforting to read that errors of this sort are possible in Vienna. The progressive wave theory, which has occupied much time of German students of tuberculosis during recent years, is given some attention and is presented in a clear manner by the author. The completeness of the various sections will be appreciated when it is seen that the subject of inspection is given twenty-two pages, palpation seven pages and auscultation twenty-two pages. The work contains chapters on reinfection, exudative pleurisy, tuberculous pneumonic processes, heart symptoms as early signs of tuberculosis of the lungs, nontuberculous apical "catarrh," and much differential diagnosis. The book contains also a chapter of eighty-four pages on roentgen diagnosis, by Dr. Felix Fleischner. Neumann states that he has recognized the importance of the x-rays and has felt it to be his duty to include the subject in this publication. It is hoped that a translation of this important work will be put into the hands of American medical men.

SLIT-LAMP MICROSCOPY OF THE LIVING EYE: EARLY DIAGNOSIS AND SYMPTOMATOLOGY OF AFFECTIONS OF THE ANTERIOR SEGMENT OF THE EYE. By Dr. F. Ed. Koby. Translated by Charles Goulden, O.B.E., F.R.C.S., Surgeon to the Royal London Ophthalmic (Moorfields) Hospital, and Clara Lomas Harris, M.B., Chief Clinical Assistant, Royal London Ophthalmic (Moorfields) Hospital. Second edition. Cloth. Price, $4.50 net. Pp. 360, with 104 illustrations. Philadelphia: P. Blakiston's Son & Company, 1930.

This edition, which appears five years after the first, has been increased in size from 221 pages to 360 pages and contains sixty-one more illustrations. The bibliography has been expanded and made as nearly complete as possible. The expansion of the book has been sound and is justified, for not only is the text elaborated but the advances of the past five years have been given due attention. There is a systematic arrangement of the book that makes it particularly usable for the beginner in biomicroscopy of the eye and emphasis is laid not only on the actual conditions seen but also on reflexes and other phenomena that might simulate pathologic appearances. Owing to the limited number of illustrations, the student is forced to see the actual conditions himself rather than draw on an imagination stimulated by such beautiful colored illustrations as those of the Vogt atlas. All in all, Koby has produced a valuable book.

PROTOKOLY ZASEDANIY ZA 1928-1929. Vypusk 5. [Official Session Reports of the Russian Endocrinologic Society for the Fiscal Year 1928-1929. No. 5.] Paper. Pp. 96. Moscow, 1930.

The Russian society for endocrine studies, which has been in existence since 1924, is made up, as elsewhere, of biologists, pathologists and clinicians. It has branches in the most important cities of the soviet union, while smaller cities have the benefits of occasional visits by the members who deliver "talks" on the topics of the day, thus arousing interest in problems pertaining to endocrinology. A special institute (state institute for experimental endocrinology) with a library and a periodical, *Vestnick Endocrinologii* (Messenger of Endocrinology) are at the disposal of the society. Its first eight proceedings appeared in their journal; the rest have been published in separate issues, of which the present, the fifth, covers eight (thirty-seventh to forty-fourth) meetings, from Oct. 13, 1928, to May, 1929. The papers usually appear in the form of abstracts, with the discussions in full. What is rather unique and really admirable are the chairman's summaries of each paper read and of the discussions with the conclusions to be derived from them. As to the papers themselves, their nature, of course, varied from ordinary topics such as exophthalmic goiter and insulinism, to difficult problems, such as the influence of the endocrine system on heredity or the chemical factors of arteriosclerosis. Like many other books emanating from Russia, the present booklet impresses one with the sincerity and enthusiasm of the scientific soviet workers. Many of the papers read appeared in the Russian special journals (Medicobiologic Journal, Journal of Experimental Endocrinology) and also abroad in the German *Endocrinologie*. The society has published a handbook on endocrinology and has under consideration a number of experimental and clinical problems but so far has been making slow progress because of lack of means. The Endocrinologic Society is evidently popular, for it grew from 179 members in 1924 to 384 in 1929.

AFFECTIONS OF THE EYE IN GENERAL PRACTICE. By R. Lindsay Rea, B.Sc., M.D., M.Ch., Surgeon to Western Ophthalmic Hospital. Cloth. Price, $3.50 net. Pp. 155, with 40 illustrations. Philadelphia: Lea & Febiger, 1930.

Here is another book by a benevolent specialist for the poor dear general practitioner. The book has the one great advantage of brevity, and yet it is remarkable how much misinformation can be spread over so little paper. For example, the author writes about "an optic neuritis which is now better known as papilledema" and fails to differentiate the conditions. True it is that the author has mentioned a goodly number of afflictions of the orbs, but the manner of mention does not contain the information so desired by the general practitioner when the patient enters his office. Scattered among the pages are many pictures, those of the fundus being good and the others not so good. At the conclusion is included the usual three pages of therapeutic formulas without which no book for the poor dear general practitioner can be accounted as complete.

SONDERBÄNDE ZUR STRAHLENTHERAPIE. Herausgegeben von Professor Dr. Hans Meyer. Band XIV: Tabellen zur Dosierung der Röntgenstrahlen. Von Prof. Dr. L. Grebe, Leiter des Röntgen-Forschungs-Institutes der Universität Bonn, und Dr. phil. K. Nitzge. Paper. Pp. 168. Berlin: Urban & Schwarzenberg, 1930.

This pamphlet responds to the increasing demand for exact dosimetry in the administration of roentgen rays. The introductory chapters expound the principles of dosimetry, discussing the measuring of the total of roentgen rays produced, the laws governing the absorption of rays, and their dispersion. The differential points between surface and intensity in the deeper parts of the object irradiated are clearly presented. Explanations of the use of the tabulated items are attached to the numerical tables. The tables proper permit of a rapid calculation of the quantities and intensity of the rays to be applied.

SÍNDROME DE OCLUSIÓN CORONARIA. Por Antonio Battro, médico agregado del Hospital Nacional de clínicas. Trabajo correspondiente al primer año de adscripción a la cátedra de clínica médica. Paper. Pp. 214, with 111 illustrations. Buenos Aires: El ateneo librería científica y literaria, 1930.

In type, paper, illustrations and general make-up this monograph is appealing to the eye, and its content is worthy of its attractive appearance. While largely a compilation, the volume is in no sense a mere hacklike abstracting of many articles. It is quite evident that the 152 articles listed in the bibliography have been read and thoughtfully considered. The facts that they contained and the views advanced have been utilized with good judgment in writing a text that expresses, not parrot-like the statements of others alone, but also the author's own opinions and in his own individual way. Thirty-six other books and articles are listed as having been consulted. So it is seen that there has been much search and scholarly study of the literature. It is not quite just to speak of the book as a compilation. The author cites his own clinical observations and gives prominence to his own investigations with the electrocardiograph in the laboratory and at the bedside. Battro is not extravagant in the claims he makes as to one's ability to diagnose this condition or to locate the lesion, even with the aid of the electrocardiograph. Nor is he unduly optimistic as to prognosis or treatment. He clearly recognizes that there is still much to be learned regarding occlusion of the coronary artery. The book is written in a simple, clear style that makes it easy reading. Battro is fond of summarizing the contents of a chapter and has a real gift along this line. He is also fond of classifying and of making tables of symptoms and of

differential diagnosis. These are somewhat reminiscent of coaching students for an intern examination; but the classifications and tabulations are generally sound and helpful. The work is worthy of praise and is a fitting companion to Levine's recent monograph on the same subject. It has often been said that the major portion of the work on coronary occlusion has been done by Americans. It is a pleasure to note that from now on the word "Americans" will have to be understood as including physicians from South America as well as from the northern continent.

ÜBER BEHANDLUNG UND AUFFASSUNG DES DIABETES MELLITUS. Von K. A. Heiberg. Paper. Pp. 59. Copenhagen: Levin & Munksgaard, 1930.

This reprint is an extremely dogmatic representation of a somewhat narrow point of view regarding many disputed questions in diabetes.

RADIOLOGIE CLINIQUE DU TUBE DIGESTIF. Publiée sous la direction de MM. Pierre Duval, J.-Ch. Roux, et H. Béclère. II (Fascicule I et II): Œsophage, intestin, foie et glandes annexes. Par J. Gatellier, professeur agrégé à la Faculté de médecine de Paris, F. Moutier, chef de laboratorie à la Faculté de médecine de Paris, et P. Porcher, chef de laboratorie de radiologie à la Faculté de médecine de Paris. Price, 330 francs. Pp. 389, with 823 illustrations. Paris: Masson & Cie, 1930.

These two books are part of a complete presentation of the x-ray applications in the diagnosis of lesions of the digestive tract. Preceding volumes in the series deal with the stomach and the duodenum. The volumes now appearing cover the esophagus, small and large intestine, the pancreas and associated gland structures. This is a large work not only in size of book but also in magnitude of detail. The subject is presented in atlas form and the large illustrations are particularly acceptable to the reader. One may make most favorable comment on the illuminating line diagrams of the x-ray illustrations; these diagrams leave little to be desired as explanatory data. Seldom does one encounter such a wealth of material. Various common and many uncommon and rare lesions are illustrated and described in detail, affording the reader an unusual opportunity to see atypical phases of x-ray values in such cases.

A MANUAL OF DISEASES OF THE NOSE AND THROAT. By Cornelius G. Coakley, A.M., M.D., F.A.C.S., Professor of Laryngology and Otology in the College of Physicians and Surgeons, Columbia University. Seventh edition. Cloth. Price, $4.50 net. Pp. 672, with 160 illustrations. Philadelphia: Lea & Febiger, 1930.

This popular manual of diseases of the nose and throat has gone into seven editions and its author's name is a testimonial of its excellence and authenticity. The anatomic descriptions are excellent and many of the plates are taken from classic works. The bulk of the treatment of the various diseases of the nose and throat is devoted to etiology, symptoms and diagnosis with no unusual stress on surgical procedures, and this is properly so for a book of this type intended for students and practitioners. To be especially commended is the author's handling of suppurative diseases of the accessory nasal sinuses and in particular that part devoted to their occurrence in children. In addition, the diseases of the pharynx and larynx are adequately dealt with and the book in its entirety serves its purpose well.

UN RÉVÉLATÉUR DU SUBCONSCIENT: LE HASCHICH. Par E. Pascal. Paper. Pp. 20. Bazas (Gironde): The Author, 1930.

From clinical observations the author concludes that in selected cases hashish weakens the will, makes a double personality, reveals subconscious tendencies, produces marked suggestibility and leaves a clear memory of the sensations and events occurring during the intoxication. Diminution of self-control and of voluntary attention, and the rapidity of flow of ideas, indicate that the higher centers are somewhat depressed. The conservation of memory and the feeling of dual personality prove that the higher centers are not completely paralyzed. The revelation of subconscious tendencies and, above all, the marked suggestibility indicate a dissociation of the conscious and the subconscious. The partial inhibition of the conscious and liberation of the subconscious mind appear to be the essential features of action of hashish.

Medicolegal

Life Insurance and Misrepresentations by Insured

(Security Life Ins. Co. of America v. Brimmer (U. S. C. C. A.) 36 Fed. (2d) 176)

As a defense against a demand made by Margaret Brimmer, executrix, under a life insurance policy on the life of Omar W. Clabaugh, written Jan. 21, 1927, the Security Life Insurance Company of America asserted that the policy had been obtained through misrepresentations by the insured. The insurer stated that when the insured applied for insurance he alleged falsely, among other things, that he had never had any disorder of the heart or blood vessels, or asthma, or rheumatism; that he had not within seven years prior to the date of the application consulted any physician not previously mentioned in his application; and that to the best of his knowledge and belief he was in good health. It appeared from the evidence, however, that in 1924 a physician who was attending the insured observed that he had arthritis of the spine, that his heart was enlarged, that his blood pressure was high, and that there was evidence of asthma. It appeared further that during the following year the insured complained to his attending physician that he had had asthmatic attacks and that the physician at that time thought he had myocarditis and cautioned the insured about it. There was other evidence of similar purport and evidence to show that the insured had made claims under health insurance policies, on account of rheumatism. He died, Feb. 13, 1928, of coronary occlusion, or stoppage of a blood vessel which supplies the heart muscle. In the district court of the United States for the western district of Missouri, judgment was rendered in favor of the beneficiary under the policy, and the insurer appealed to the United States Circuit Court of Appeals, Eighth Circuit.

The Revised Statutes of Missouri, 1919, section 6142, provide that:

> No misrepresentation made in obtaining or securing a policy of insurance on the life or lives of any person or persons, citizens of this state, shall be deemed material, or render the policy void, unless the matter misrepresented shall have actually contributed to the contingency or event on which the policy is to become due and payable, and whether it so contributed in any case shall be a question for the jury.

The statute eliminates all defenses based on representations concerning matters which did not contribute to the death of the insured.

It appears without dispute, said the Circuit Court of Appeals, that after certain physicians found that the insured had certain diseases and advised him of that fact, he was examined on three different occasions for insurance and was passed and that he was examined by the examining surgeon of the defendant company in this case. It was open to the jury, therefore, to believe that even though the insured had previously had the diseases attributed to him, including some heart ailments or symptoms thereof, he had recovered from them, or that the physicians who had diagnosed his condition had been mistaken concerning it. The jury might have found that the insured, in good faith, believed either that he had not had the diseases attributed to him or that he had recovered from them. Since reasonable men might have reached different conclusions with respect to these issues, the case was properly sent to the jury, if the court correctly decided the questions of law involved. The Circuit Court of Appeals could not, on appeal, weigh the evidence, but if there was substantial evidence to support the verdict, it must stand.

The trial court instructed the jury substantially that before it could find that the misrepresentations of the insured with respect to consultations with physicians other than those named in his application were misrepresentations that would void the policy, it must find that the "applicant knew that he was consulting a physician about the ailment which is alleged to have contributed to his death." The evidence indicated that it was difficult for a person to detect impairment of his own heart. In view of such evidence and of the verdict rendered, it must be assumed, said the Circuit Court of Appeals, that the jury found that the insured did not know that he was consulting a physician about the ailment which is alleged to have contributed to

his death. That a false statement by an applicant for insurance that he had not consulted a physician could not contribute to his death and that such a statement was therefore immaterial was held by the Supreme Court of Missouri, in *Kellar* v. *Home Life Ins. Co.*, 198 Mo. 440, 95 S. W. 903. "While the diseases for which the insured sought other physicians for treatment," said the Supreme Court in that case, "may have contributed to his death, yet we are unable to understand how a false statement as to the mere fact as to whether he had consulted or had been treated by other physicians, could do so." The fact that the insured may have consulted a physician for some temporary ailment which did not contribute to his death could not be a material representation within the meaning of the Missouri statute. *New York Life Ins. Co.* v. *Moats* (C. C. A.) 207 F. 481.

The judgment of the lower court in favor of the beneficiary under the insurance policy was affirmed.

"Under the Influence of Intoxicating Liquor" Defined

(Hasten v. State (Ariz.), 280 P. 670)

Hasten was convicted of operating a motor vehicle while "under the influence of intoxicating liquor." The record does not show his exact condition at the time of the offense. He appealed, however, to the Supreme Court of Arizona, on the ground that the phrase "under the influence of intoxicating liquor," as used in the statute, means under the influence of intoxicating liquor to such an extent as to impair to an appreciable degree one's ability to operate his motor vehicle in the manner that an ordinarily prudent and cautious man, in full possession of his faculties and using reasonable care, would operate a similar vehicle under similar conditions. The state contended that the phrase covered any influence of intoxicating liquor, however slight. It was on the latter construction of the law that Hasten was convicted in the trial court, and that construction of the law was sustained by the Supreme Court.

The legislature, said the Supreme Court, "in order so far as possible to remove danger from an admixture of liquor and gasoline provided that any person 'influenced' by the former, without specifying the extent to which such influence must go, must himself abstain from using the latter in a motor vehicle." A person who is even to the slightest extent "under the influence of liquor," in the common and well understood acceptation of the term, is to some degree at least less able, either mentally or physically, or both, to exercise the clear judgment and steady hand necessary to handle as powerful and dangerous a mechanism as a modern automobile with safety to himself and to the public. It is not strange, therefore, that the law-making power determined that any person, who of his own free will voluntarily lessens in the slightest degree his ability to handle such vehicles, by the use of intoxicating liquor, shall, while in such condition, be debarred from their use. The legislature placed no limit on the extent of the influence of intoxicating liquor necessary to debar a person from operating a motor vehicle, and the court declined to do so. While this construction of the phrase "under the influence of intoxicating liquor" is not in harmony with that adopted by the Supreme Court of California, in *People* v. *Dingle*, 56 Calif. App. 445, 205 P. 705, 706, it is in keeping with the decision of the courts of New Jersey, *State* v. *Rodgers*, 91 N. J. Law, 212, 102 A. 433, 435, and of Oregon, *State* v. *Noble*, 119 Or. 674, 250 P. 833.

Electric Treatments by Chiropractor Unlawful

(State Board of Medical Examiners v. De Baun (N. J.), 147 Atl. 744)

Application was made to De Baun, a licensed chiropractor, for treatment. He caused the patient to disrobe, gown, and lie on a cot with a large electric lamp over it. Later he placed on her body two electric disks, one on her "stomach" and one on her back, which were connected to an electric machine. The current was gradually turned on until it was as strong as the patient could endure, and then it was left on for about one-half hour. The state board of medical examiners instituted proceedings against De Baun for practicing medicine and surgery without a license. In the district court, Bergen County, he was held to be not guilty. The board thereupon appealed to the Supreme Court of New Jersey. De Baun himself testified that he applied the galvanic current, "which produces heat for relaxation." He claimed that the treatment given was not a violation of the direct prohibitions of the statute. Furthermore, he claimed that if they were within the direct prohibitions, they nevertheless came within the exception which provided that "the prohibitory provisions in this act as amended shall not apply to . . . the giving of treatment by electricity by any person resident of this State who has been continuously engaged in giving treatment by electricity herein during the past fourteen years; provided, that said person has graduated from a legally incorporated electro-therapeutic school in good standing." This waiving clause, said the court, is not applicable, because De Baun was not a graduate of a legally incorporated electrotherapeutic school in good standing. He was admitted to practice chiropractic under a law which defined chiropractic as the art of permitting restoration, by placing in juxtaposition the abnormal concrete positions of definite mechanical portions with each other, by hand. Said the court:

> Electricity is a dangerous instrumentality with the ever present capacity to do serious bodily harm unless restrained within proper limitations. It is essential that its use as applied to the human body should be under the direction of authorized persons. Its use in the instant case was a part of the art of healing. The specific use above referred to in no wise involved the function of hand manipulation. We are unable to conceive of any hypothesis in the proofs in the case upon which the use of electricity in the manner stated is a part of the practice of chiropractic.

The judgment of the trial court, holding De Baun not guilty, was reversed.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, October 27-31. Dr. W. P. Wherry, Medical Arts Building, Omaha, Secretary.

American Academy of Physical Therapy, Boston, October 22-24. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pennsylvania, Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Niagara Falls, Canada, September 15-17. Dr. James E. Davis, 1825 Geddes Avenue, Ann Arbor, Mich., Secretary.

American Association of Railway Surgeons, Chicago, November 5-7. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Surgeons, Philadelphia, October 13-17. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Hospital Association, New Orleans, October 20-24. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Physical Therapy Association, Chicago, Oct. 6-10. Dr. C. C. Vinton, 1650 Broadway, New York, Secretary.

American Public Health Association, Fort Worth, Texas, October 27-31. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

American Roentgen Ray Society, West Baden, Ind., September 23-26. Dr. John T. Murphy, 421 Michigan Street, Toledo, Ohio, Secretary.

Association of American Medical Colleges, Denver, October 14-16. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Association of Military Surgeons of the United States, Washington, D. C., Sept. 25-27. Dr. J. R. Kean, Army Medical Museum, Seventh and B Streets, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Kansas City and Excelsior Springs, Missouri, October 9-11. Dr. E. D. Plass, University Hospital, Iowa City, Iowa, Secretary.

Central States Pediatric Society, Memphis, Tenn., November 7-8. Dr. A. H. Parmelee, 310 South Michigan Boulevard, Chicago, Secretary.

Delaware, Medical Society of, Dover, Oct. 14-15. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Indiana State Medical Association, Fort Wayne, September 24-26. Mr. T. A. Hendricks, Hume-Mansur Bldg., Indianapolis, Executive Sec'y.

Kentucky State Medical Association, Bowling Green, September 15-18. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Medical and Surgical Association of the Southwest, El Paso, Texas, November 6-8. Dr. W. Warner Watkins, Box 1587, Phoenix, Ariz., Secretary.

Michigan State Medical Society, Benton Harbor, September 15-17. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

Mississippi Valley Conference on Tuberculosis, Rockford, Ill., October 14-16. Dr. Robinson Bosworth, Box 1005, Rockford, Secretary.

Missouri Valley, Medical Society of the, Des Moines, Iowa, October 15-17. Dr. Joseph D. McCarthy, 107 South Seventeenth Street, Omaha, Secretary.

Nevada State Medical Association, Reno, September 26-27. Dr. H. J. Brown, Box 688, Reno, Secretary.

Oregon State Medical Society, Portland, September 18-20. Dr. F. D. Stricker, 301 Oak Street, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Johnstown, Oct. 6-9. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Vermont State Medical Society, Burlington, October 2-3. Dr. William G. Ricker, 33 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Norfolk, October 21-23. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Western Branch of the American Urological Association, Los Angeles, September 18-20. Dr. H. W. Howard, 193 Eleventh Street, Portland, Ore., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Tropical Medicine, Baltimore

10: 237-298 (July) 1930

Survival of Various Micro-Organisms within Gastro-Intestinal Tract in Aedes Aegypti. J. H. St. John, J. S. Simmons and F. H. K. Reynolds, Manila, P. I.—p. 237.

Identification of Anopheline Mosquitoes of Porto Rico. C. W. Wells, New York.—p. 243.

Oral Toxicity of Emetine Hydrochloride and Certain Related Compounds in Rabbits and Cats. H. H. Anderson and C. D. Leake, San Francisco.—p. 249.

Therapy of Internal Leishmaniasis. G. Caronia, San Francisco.—p. 261.

Biochemical Study of Two Patients with Condition Simulating Sprue. P. Starr and L. Gardner, Chicago.—p. 283.

American Review of Tuberculosis, Baltimore

22: 121-231 (Aug.) 1930

*Pleural Effusions. M. Pinner and G. Moerke, Northville, Mich.—p. 121.

*Pulmonary and Secondary Intestinal Tuberculosis. E. H. Rubin, New York.—p. 184.

Nature of Growth-Promoting Active Principle in Potato. Nao Uyei, Denver.—p. 203.

Sensitization of Cattle to Tuberculin by Other Than Tubercle Bacilli. E. G. Hastings, B. A. Beach and I. Thompson, Madison, Wis.—p. 218.

*Immunization Against Tuberculosis by Langer Vaccine. D. S. Brachman, Detroit.—p. 226.

Pleural Effusions.—Experiments on rabbits show that the normal pleura is highly permeable in either direction for the constituents of the blood. In patients under pneumothorax treatment for pulmonary tuberculosis and with pleural effusions, a marked decrease of the pleural permeability is shown by actual experiments made by Pinner and Moerke and must be assumed to exist from the results of chemical studies of the blood and the pleural effusion. In sixteen such patients, thirty-two specimens of pleural fluid and blood were examined chemically. The results, more complete than any heretofore reported, are discussed particularly from the standpoint of pleural permeability. Cytologic, bacteriologic and serologic studies on these thirty-two specimens are reported. Chemical, cytologic or serologic data do not afford per se dependable diagnostic or prognostic criteria. The failure of resorption of pleural effusions cannot be explained by their chemical constitution; it must be due to an alteration in the pleural permeability.

Pulmonary and Secondary Intestinal Tuberculosis.—A study made by Rubin of 500 patients who died of chronic pulmonary tuberculosis revealed an incidence of intestinal tuberculosis in approximately 65 per cent. This applied only to patients between the ages of 31 and 50 years. The complication was twice as frequent among patients under 30 as it was in those over 50 years of age; of the former, approximately 4 out of 5 had intestinal ulcerations, and of the latter 2 out of 5. In the 324 patients with ulcers in the intestine, it was observed that in younger individuals there was a greater tendency to extensive involvement. A greater proportion of elderly patients with chronic fibroid phthisis showed a minimal degree of intestinal ulcerations than of patients with caseous pneumonic tuberculosis. On the other hand, extensive intestinal ulcerations were noted more than three times as frequently in patients with caseous pneumonic tuberculosis as in those with fibroid pulmonary tuberculosis. Microscopic signs of healing were seen quite frequently in tuberculous ulcers of the intestine. Healing and healed ulcers were often found in the intestine in close proximity to more recent ulcerations, indicating that disease in the intestine had existed for some time prior to a terminal dissemination of the bacillus. Perforation of tuberculous ulcers was observed in 8 patients. In many respects, intestinal and laryngeal tuberculosis are closely related, as regards both their frequencies and their relationship to the pulmonary disease. It was not uncommon to see in the same patient signs of healing in the lungs, intestine and larynx. Of the patients with fibrotic pulmonary tuberculosis, 23 per cent had laryngeal involvement; of those with caseous pulmonary tuberculosis, 65 per cent had laryngeal involvement. The character and extent of the disease in the larynx was duplicated in the lungs and intestines with a few noteworthy exceptions.

Immunization Against Tuberculosis by Langer Vaccine.—Langer vaccine, made of young virulent bacilli, killed by heat, is suitable for immunizing purposes in this country, and Brachman strongly recommends its use. There is no apparent risk, present or future, connected with its application, and results in Europe are entirely in its favor. It is necessary, in order to procure the largest number of subjects for this vaccination, that tuberculosis be diagnosed early, resulting in contacts having the least amount of exposure, and hence less likely to become infected. Also, there must be sufficient institutional beds, so that tuberculosis patients can be immediately hospitalized, again limiting the length of exposure of contacts. Failing the latter facilities, additional quarters for the young contacts pending testing and vaccination would do, but the parents' consent to this arrangement is not forthcoming in the great majority of cases.

Archives of Otolaryngology, Chicago

12: 1-132 (July) 1930

Application of Medical and Social Science to Problems of Acquired Deafness. W. C. Phillips, New York.—p. 1.

Decalcification of Temporal Bones. E. W. Hagens, Chicago.—p. 14.

Conservative Treatment of Chronic Maxillary Sinusitis. H. A. Trotter, Buffalo.—p. 18.

Asphyxia: Treatment in Adult and in New-Born. P. J. Flagg, New York.—p. 23.

Suction Tonsillectomy. J. B. H. Waring, Cincinnati.—p. 31.

Treatment of Early Malignant Condition of Larynx by Electrodesiccation and Radium. R. H. Craig, Montreal, Canada.—p. 39.

Primary Cholesteatoma of Sinuses and Orbit. F. R. Spencer, Boulder, Colo.—p. 44.

Fusospirochetic Otitis. P. Mangabeira-Albernaz, Campinas, Brazil.—p. 49.

Radical Maxillary Sinus Operation (Caldwell-Luc). C. F. Wright, Boston.—p. 63.

*Appendicitis Following Tonsillectomy: Two Cases. H. C. Ballenger, Chicago.—p. 67.

Etiology of Asthma. J. B. Potts, Omaha.—p. 72.

Diagnosis of Vasomotor Disturbances of Nose. L. Hubert, New York.—p. 78.

Melanosarcoma Originating in Mucous Membrane of Lower Turbinate. W. F. Clevenger and H. L. Norris, Indianapolis.—p. 81.

Unusually Large Antral Polyp. J. J. Shea, Memphis, Tenn.—p. 84.

Tuberculosis Papillomatosa Cutis of Ear. F. L. Dennis, Colorado Springs, Colo.—p. 86.

Paranasal Cavities. D. C. Smyth, Boston.—p. 89.

Appendicitis Following Tonsillectomy. — Ballenger reports two cases in which appendicitis developed soon after the removal of tonsils. A girl, aged 5, was admitted to the hospital with a history of mouth breathing, snoring, frequent colds, sore throats and an occasional earache, with two instances of a supervening acute suppurative otitis media. There was no history of a previous attack of appendicitis, recent cold in the head or sore throat. The tonsils were large, almost meeting when she opened her mouth. No acute inflammation of the nose or throat was evident. The tonsils were removed. The second day following the operation, the patient suddenly complained of pain in the abdomen. The pain was accompanied by a rise in temperature to 101 F. and a leukocyte count of 18,000. A diagnosis of acute appendicitis was made, which was affirmed by operation. The second patient, aged 5 years, was admitted to the hospital with a history of frequent colds and sore throats, with mouth breathing and snoring most of the time during the past year. Her tonsils and adenoids were large, with no evidence of an acute infection and with no history of a recent cold or sore throat. The tonsils were removed. The day following the tonsillectomy she felt well, but during the night of the following day she complained of pain in the abdomen with nausea. Vomiting and fever accompanied the pain. A diagnosis of acute appendicitis was made. The abdomen was opened and a gangrenous appendix was found with a localized peritonitis.

Archives of Surgery, Chicago

21: 185-364 (Aug.) 1930

Congenital Insufficiency of Palate. G. M. Dorrance, Philadelphia.—p. 185.
*Course of Nerve Fibers Transmitting Sensation of Taste. D. Lewis and W. E. Dandy, Baltimore.—p. 249.
*Painful Postoperative Abdominal Scars. F. W. Bancroft, New York. —p. 289.
*Effect of Acute Experimental Cholecystitis on Emptying of Gallbladder. G. T. Murphy, Rochester, Minn.—p. 300.
Management of Giant Cell Sarcoma of Vertebrae: Case. J. O. Bower, J. H. Clark and L. Davis, Philadelphia.—p. 313.
*Effect of Spinal Anesthesia on Cardiac Output. J. C. Burch and T. R. Harrison, Nashville, Tenn.—p. 330.
*Etiology of Interstitial and Mediastinal Emphysema. M. Joannides and G. D. Tsoulos, Chicago.—p. 333.

Course of Nerve Fibers Transmitting Sensation of Taste.—Lewis and Dandy failed to find evidence to support the theory that a variable nerve supply conducts the sensations of taste, as first advanced by Krause and more recently sponsored by Harris, who accepted Nageotte's anatomic demonstration that the fifth, seventh and ninth nerves have a common gustatory nucleus in the pons. Their observations indicate that but one nerve conducts sensations of taste from the anterior two thirds of the tongue. This is the nervus intermedius (Wrisberg) or the glossopalatinus (Hardesty), which represents the sensory portion of the seventh nerve. The course of the pathway of taste is direct. Stimuli pass from the taste buds through the chorda tympani by way of the geniculate ganglion and the nervus intermedius into the pons. These conclusions are based on the results of intracranial division of the isolated cranial nerves in patients. The following are the observations on which the conclusions are drawn: 1. Section of the sensory root of the fifth nerve is not followed by any permanent changes in taste, although in each instance all forms of sensation except taste over the trigeminal domain are totally absent. 2. After intracranial division of the seventh nerve, including the sensory portion (nervus intermedius of Wrisberg, the nervus glossopalatinus of Hardesty), taste to the anterior two thirds of the tongue is completely and permanently lost. 3. Division of the facial nerve, between the geniculate ganglion and the point at which the chorda tympani leaves the facial nerve to pass through the middle ear, is invariably followed by total and permanent loss of taste. 4. Intracranial division of the glossopharyngeal nerve is followed by complete and permanent loss of taste to the posterior third of the tongue, but there is no effect on taste in the anterior two thirds of the tongue.

Painful Postoperative Abdominal Scars.—Bancroft is convinced that injuries to the nerve are more common in abdominal wounds than is generally recognized. In the four cases reported here the right rectus incision was made. Hence, whenever possible, incision through the right rectus muscle should be eliminated from the surgeon's armamentarium. If the surgeon prefers an incision to the right of the median line, either for exploration or for a better approach to the appendix, the Kammerer modification seems preferable to the usual right rectus incision. Often the surgeon wishes to remove an appendix and at exploration finds pathologic changes in the region of the gallbladder. Bancroft suggests that, if a Kammerer incision has been made, the wound may be extended by a high oblique incision—one parallel to the McBurney incision—which begins at the rectus sheath and ends at the ninth costal cartilage in the mammary line. By this incision it is necessary usually to cut only one nerve, that at the upper angle of the Kammerer incision. This nerve can easily be seen at the first incision and can be cut without danger of ligating it with the accompanying vessel. The extension of the incision runs parallel to the course of the intercostal nerves. A satisfactory exposure can be obtained thereby. Upper or lower paramedian incisions are satisfactory, because neither vessels nor nerves of any considerable account are encountered. The McBurney and the low Pfannenstiel incision are ideally planned to avoid trauma to the nerves. The Kocher incision for exposure of the gallbladder involves the risk of injuring nerves, but less so than the right rectus incision. Transverse abdominal incisions, extending either to or through the rectus muscles, are preferable to lateral vertical incisions, as fewer nerves are encountered and as cut muscles heal satisfactorily after suture.

Effect of Acute Experimental Cholecystitis on Emptying of Gallbladder.—The intravenous injection of varying amounts of eusol has resulted in the production of a high percentage of acutely inflamed gallbladders. The effect of the specific chemical cholecystitis on the emptying of the gallbladder was studied by Murphy in a series of ten animals. Direct observations, as well as roentgenograms, were made of the diseased gallbladders following the administration of a meal rich in egg yolk and cream. Only one instance has been encountered wherein an acutely inflamed gallbladder, produced by this means, has shown any evidence of emptying. The observations appear to indicate that the acutely inflamed gallbladder does not empty after the usual test meal.

Effect of Spinal Anesthesia on Cardiac Output.—From the data presented by Burch and Harrison it appears that in spinal anesthesia the initial change is in arterial pressure, and that the venous return and output of the heart are affected secondarily. This sequence of events is just the opposite of that in hemorrhage. It appears that the lowering of the blood pressure under spinal anesthesia is analogous to that occurring in primary shock or collapse or in ordinary syncope. Such an understanding of the mechanism of spinal shock may have therapeutic significance. *A priori,* since the peripheral resistance is primarily at fault, one would expect more value from vasoconstrictor drugs than in hemorrhage, a condition in which the circulatory blood volume, venous return and cardiac output are essentially affected.

Etiology of Interstitial and Mediastinal Emphysema.—Joannides and Tsoulos are of the opinion that interstitial emphysema is apparently a protective mechanism on the part of the body to keep air from parts where it may cause difficulty. A simple subcutaneous emphysema is harmless, and with a few small multiple incisions the air may be allowed to escape to the outside without causing any harm. If the condition causing the emphysema is persistent and as a result there is an acute pneumothorax and a pneumoperitoneum, the condition may be relieved if an outlet for the air is produced in the chest and abdominal cavities. No method has as yet been developed, however, to clear up air embolism of a massive type. They have tried the combination of blood transfusion and venesection in order to replace the emulsified blood with normal blood, but without success. The condition of mild mediastinal emphysema and mild degree of air embolism is probably more common than is generally seen, because heretofore only the extreme degrees of the condition have been recognized. Their experiments lead the authors to believe that anything that produces an increased intrapulmonic pressure, such as a severe cough, child labor and lifting of heavy objects, probably causes a mild degree of mediastinal emphysema and air embolism, which as yet cannot be recognized clinically.

Delaware State Medical Journal, Wilmington

2: 111-132 (July) 1930

Truth About Serum Diagnosis of Syphilis. J. A. Kolmer, Philadelphia. —p. 111.
Paralysis of Vocal Cords Due to Focal Infection. W. O. LaMotte, Wilmington.—p. 122.

Florida Medical Association Journal, Jacksonville

17: 3-48 (July) 1930

Auricular Fibrillation. S. A. Folsom, Orlando.—p. 11.
Insomnia. H. M. Smith, Tampa.—p. 18.
Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. M. J. Flipse, Miami.—p. 22.
Spinal Anesthesia. J. R. Boling, Tampa.—p. 27.
Caudal Anesthesia in Rectal Surgery. C. L. Perry, Miami.—p. 30.

Journal of Bone & Joint Surgery, Boston

12: 505-732 (July) 1930

Stenosing Tendovaginitis at Radial Styloid Process. H. Finkelstein, New York.—p. 509.
*Histology of Postoperative Healing Process in Chronic Osteomyelitis and Prognostication from Biopsy Sections. P. H. Kreuscher and W. C. Hueper, Chicago.—p. 541.
*Epiphyseal Separation of Lesser Femoral Trochanter. P. W. Lapidus, New York.—p. 548.
Intervertebral Nucleus Pulposus: Anatomy, Physiology and Pathology. J. Calvé and M. Galland, Berck-Plage, France.—p. 555.
*Experimental Study of Free Periosteal Transplants, Wrapped Around Tendon. M. S. Burman and M. Umansky, New York.—p. 579.

Double Isolated Compression Fracture of Spine. C. C. Schneider, Milwaukee.—p. 595.
Syphilis of Bone. S. M. Cone, Baltimore.—p. 600.
Structure and Function of Articular Synovial Membranes. L. A. Sigurdson, Stanford University, Calif.—p. 603.
Dislocation of Knee: Four Cases. J. I. Mitchell, Memphis, Tenn. —p. 640.
Sebaceous Cyst of Terminal Phalanx of Thumb. R. I. Harris, Toronto. —p. 647.
*Supernumerary Foot: Case. L. Mayer and D. Sashin, New York. —p. 649.
*Hereditary Recurrent Dislocation of Patella: Case. B. H. Moore, Chicago.—p. 654.
*Use of Intramedullary Beef-Bone Graft in Open Reductions of Clavicle. A. Brockway, Los Angeles.—p. 656.
New Spring Back Brace for Fractured Clavicles. H. W. Spiers, Los Angeles.—p. 663.
Instrument to Facilitate Placing of Parham Bands or Suture Material Around Bone. C. F. Eikenbary, Seattle.—p. 666.
Prescription Blank for Modification of Shoes. P. Lewin, Chicago. —p. 668.
Apparatus for Treatment of Fractures of Os Calcis. E. P. Gillette, Toledo, Ohio.—p. 670.
Adjustable Buck's Extension. N. H. Rachlin, New York.—p. 672.
Improved Suspension Apparatus for Application of Body Casts. D. H. Levinthal, Chicago.—p. 675.

Histology of Postoperative Healing Process in Chronic Osteomyelitis.—The observations of Kreuscher and Hueper seem to indicate that a prognostication of the postoperative healing process of chronic osteomyelitis from biopsy sections is possible and renders valuable information in regard to the therapeutic management of the individual case.

Epiphyseal Separation of Lesser Femoral Trochanter.—A case of epiphyseal separation of the lesser femoral trochanter is described by Lapidus. Symptoms and signs of epiphyseal separation of the lesser femoral trochanter are pain and tenderness over the lesser trochanter, weakness or complete loss of flexion of the thigh, Ludloff's sign, and the peculiar "gait of deficient flexion of the thigh." Treatment consists of rest in bed with relaxed iliopsoas muscle or immobilization by means of a plaster-of-paris spica with the thigh in flexion, external rotation, and adduction; operative treatment is not justifiable. Complete recovery with premature fusion of the epiphysis of the lesser femoral trochanter usually takes place in all cases.

Study of Free Periosteal Transplants, Wrapped Around Tendon.—Burman and Umansky doubt much the usefulness of periosteal grafting in tenodesing and extra-articular arthrodesing operations, the irregularity of ossification militating against such a procedure. The therapeutic formation of bone tubes is still too uncertain to warrant practical use.

Supernumerary Foot.—In the case reported by Mayer and Sashin the left foot (or feet) had nine toes, four belonging to the mesial foot, five to the lateral foot. The lateral foot slightly overlaps the dorsal surface of the mesial foot. This caused a plantar prominence of the little toe of the mesial foot, and a dorsal prominence of the great toe of the lateral foot. This lateral great toe was smaller than the mesial and was partly fused to the lateral second toe. There was no line of cleavage between the two feet, except just posterior to the toes, where for an inch the two feet could be separated. The heel was almost twice as broad as that of the right foot. Both left feet were in an everted position and the mesial foot showed an abduction of the forefoot of about 15 degrees. The extra foot was dissected off. On dissection it was possible to identify the os calcis, astragalus and cuboid, each of which had a center of ossification corresponding to the shadow in the roentgenogram. The cuneiform bones and the scaphoid were entirely cartilaginous. Of the five metatarsals, the inner was broader and slightly larger than the four outer. The two outer were fused at their base.

Hereditary Recurrent Dislocation of Patella.—Moore's patient had inherited the difficulty from his father. The patient has no brothers, and two sisters are unaffected. His father has the same condition. The father had four brothers who were affected in the same way, and one entirely unaffected. The one unaffected has one child who is not affected. One of the affected brothers has no children and one has one child about 9 years old who is beginning to show trouble. The other affected brother has a child who does not show it. The father's mother had the condition; though of a large family she was the only one who showed it. Yet her sister had two sons and a grandson who had the difficulty in a serious way. The father's father did not have it though he did have two brothers who did have difficulty, though not seriously. The patient's grandfather and grandmother were first cousins. There was a family tradition that their mother had some difficulty of the sort, though this is not definite.

Use of Intramedullary Beef-Bone Graft in Open Reductions of Clavicle.—Brockway states that open reduction of the clavicle with introduction of intramedullary beef-bone graft is a simple operation and gives unusually efficient internal fixation, so that the problem of external fixation appliances becomes unimportant.

Journal of Nervous & Mental Disease, New York

72: 1-112 (July) 1930

Syringomyelia or Myelodysplasia. H. A. Riley, New York.—p. 1.
Paranoia and Magic. Dorian Feigenbaum, New York.—p. 28.
State, Psychotic and Criminal. F. J. Farnell, Providence, R. I.—p. 34.
What Shall We Choose to Call Emotion? J. M. McKinney, New York. —p. 46.

72: 113-240 (Aug.) 1930

Freud's Discomforts of Civilization. A. A. Brill, New York.—p. 113.
New Methods for Studying Brains of Exceptional People (Encephalometry and Braincasts). C. von Economo, Vienna, Austria.—p. 125.
Affectepilepsy and Hystero-Epilepsy. J. Notkin, New York.—p. 135.
*Therapeutic Value of High Temperature Baths in Multiple Sclerosis. F. G. Lindemulder, Ann Arbor, Mich.—p. 154.

Therapeutic Value of High Temperature Baths in Multiple Sclerosis.—Lindemulder reports on the effects of giving high temperature baths in twelve cases of multiple sclerosis. Four patients showed decided improvement. All were less ataxic, nystagmus disappeared in one case, and a positive Babinski sign disappeared in another. Two patients seemed considerably worse. They had become more ataxic and one had developed a positive Babinski sign. The remainder showed no especial change in symptoms. Multiple sclerosis is characterized by frequent spontaneous remissions and exacerbations which may explain the variations observed in these cases.

Nebraska State Medical Journal, Norfolk

15: 297-336 (Aug.) 1930

Sepsis in Infancy and Childhood. I. Abt, Chicago.—p. 297.
Minor Organic and Functional Disorders of Bowel. J. C. Thompson, Lincoln.—p. 303.
*Ulcerative Colitis: Diet. A. Sachs and R. L. Traynor, Omaha.—p. 308.
Thrombo-Angiitis Obliterans. C. L. Husted, Falls City.—p. 311.
Gangrene of Extremities: Raynaud's Type. H. R. Miner, Falls City. —p. 313.
Acrodynia: Three Cases. F. Clarke, Omaha.—p. 315.
Medical Science an Adjunct to Commercial Advancement. A. P. Fitzsimmons, Tecumseh.—p. 318.
Spinal Curvatures and Treatment by Corrective Exercises. A. N. Anderson, Belvidere.—p. 321.
Skin Grafting by Implantation. E. A. Connolly, Omaha.—p. 323.

Ulcerative Colitis.—Sachs and Traynor report three cases of ulcerative colitis treated by a diet of high vitamin content, with gratifying results. The diet used consisted of orange juice, cod liver oil, yeast, leafy vegetables, ground red meats (especially liver), and a sufficient amount of bland foods to give a diet of from 2,500 to 3,000 calories. In all three cases liver extract also was used.

New England Journal of Medicine, Boston

203: 95-144 (July 17) 1930

Operation on Lone Kidney: Two Cases. C. S. Swan, Boston.—p. 104.
Fibrous Obstruction of Vesical Outlet. C. W. Collings, New York. —p. 107.
Comparison of Results Following Suprapubic and Perineal Prostatectomy. G. G. Smith, Boston.—p. 114.
Progress of Nutrition. F. L. Burnett, Boston.—p. 118.

203: 145-194 (July 24) 1930

*Physiologic and Clinical Effects of High Fat Feeding. H. L. Higgins, Boston.—p. 145.
Helmet for Use in Clinical Studies of Gaseous Metabolism. F. G. Benedict, Boston.—p. 150.
Why Do So Many Die of Tuberculosis? J. A. Miller, New York. —p. 158.
Thrombosis of Interlobular Arteries of Kidneys in Pregnancy. S. C. Dalrymple, Newton, Mass.—p. 160.
Neurologic Complications of Whooping Cough: Four Cases. R. C. Eley, Boston.—p. 162.

Children's Tuberculosis Program in Massachusetts. P. Wakefield, Boston.—p. 168.
Support of Druggist in Control of Gonorrhea and Syphilis. G. H. Bigelow and N. A. Nelson, Boston.—p. 172.

Physiologic and Clinical Effects of High Fat Feeding.—Higgins suggests that high-fat diets may have a place in the routine prevention and amelioration of the common respiratory infections. He favors the omission of candy and the definite limitation of sugar and starches in the diet in the winter as a prophylaxis against colds. It is hardly necessary to limit the carbohydrate to the extent of making it a ketogenic diet. Most patients take a high-fat diet surprisingly well; they seldom have gastro-intestinal upsets, certainly no more frequently than the average person on the usual high-carbohydrate diet. If such an upset occurs, starvation is recommended temporarily. Patients on the high-fat diet complain of some difficulty in doing hard and prolonged muscular work. To do work, sugar or glycogen seems necessary.

Occupational Therapy & Rehabilitation, Baltimore

9: 195-258 (Aug.) 1930

Occupational Therapy. J. Walker.—p. 195.
Relation of Mental Hygiene to Public Health. S. W. Hamilton, White Plains, N. Y.—p. 203.
Growing Need and Value of Curative Occupations in All Types of Institutions for Mental Cases and in Penal and Correctional Institutions. W. J. Ellis, Trenton, N. J.—p. 213.
Progress of Occupational Therapy. T. B. Kidner.—p. 221.
Value of Continued Statistics in Occupational Therapy. H. M. Pollock, New York.—p. 225.
Mental Health Objectives in Physical Education. J. E. Davis, Perry Point, Md.—p. 231.
Report on Institute Exhibit. V. Scullin.—p. 239.
Impressions of Occupational Therapy in Southern California. R. A. Adams.—p. 241.
Elementary Frame Weaving Problem. S. Herman.—p. 245.

Ohio State Medical Journal, Columbus

26: 649-728 (Aug. 1) 1930

Liver Function: Sympathicosuprarenal Response Test. C. DeCourcy and O. Thuss, Cincinnati.—p. 669.
Prostatic Hypertrophy. W. N. Taylor, Columbus.—p. 672.
Health Education and Physician. C. C. Kohl, Bowling Green.—p. 680.
Comparison of Goiters of Continental Europe and Great Lakes Area. N. W. Gillette, Toledo.—p. 685.

Radiology, St. Paul

15: 173-338 (Aug.) 1930

*Encephalography as Roentgenologist Should Understand It. H. K. Pancoast and T. Fay, Philadelphia.—p. 173.
Roentgen Analysis of Atomic Structure. G. E. M. Jauncey, St. Louis.—p. 211.
When Has Visceroptosis Clinical Significance? S. D. Beilin, Chicago.—p. 223.
Calibration of Fingerhut Ionization Chamber. L. S. Taylor and G. Singer, Washington, D. C.—p. 227.
Crystal Structures of Trimethyl and Dimethyl Ethyl Sulphonium Chlorostannates and Methyl Triethyl Phosphonium Chlorostannate. R. B. Corey and R. W. G. Wyckoff, New York.—p. 241.
New Studies on Chemical Effects of Roentgen Rays. G. L. Clark, L. W. Pickett and E. D. Johnson, Urbana, Ill.—p. 245.
Radiation Sensitization: Case. V. M. Moore, Grand Rapids, Mich.—p. 262.
Intracranial Calcification, Probably of Choroid Plexus. J. A. Beals, Jacksonville, Fla.—p. 268.
Direct Roentgenologic Signs of Gastrojejunal and Jejunal Ulcer. J. D. Camp, Rochester, Minn.—p. 274.
Economic Problems of Roentgen Laboratory. P. M. Hickey, Ann Arbor, Mich.—p. 280.
Work of Committee on Cost of Medical Care. A. C. Christie, Washington, D. C.—p. 284.
Preradium Treatment of Carcinoma of Uterine Cervix. H. Swanberg, Quincy, Ill.—p. 290.
*Cause of Death from Radium. A. J. Larkin, Chicago.—p. 296.

Encephalography as Roentgenologist Should Understand It.—A survey of 1,529 cases of encephalography made by Pancoast and Fay showed a mortality of 20 when followed to a three-months postoperative period (1.2 per cent). Three deaths were reported in cases of glioma, two in cerebellar tumors, five with internal hydrocephalus, and the remainder occurred in conditions such as premature infants and meningitis, and in alcoholic and paralytic patients, evidently poor risks. Approximately 85 per cent of the deaths reported were from foreign clinics, and it was evident that encephalography was used in cases in which contraindications existed or the condition of the patient did not warrant the procedure.

Cause of Death from Radium.—Larkin's experiments on rabbits showed that death due to external radium radiation is associated with loss of body weight, extreme leukopenia, anorexia and apathy. Death due to external radium radiation is associated with marked degenerative changes in the bone marrow and spleen, cloudy swelling in the convoluted tubules of the kidney, granular cytolysis in the liver, and annihilation of the parenchyma of the thymus gland. Lethal dosage varied markedly with the age of the animal; the younger the animal, the lower the dosage required. Death occurred within eighteen days, averaging seventeen days after exposure, and dosage delivered within seven days acted as a unit. Dosage delivered in eight or more days required an increase to be lethal.

South Carolina M. Assn. Journal, Greenville

26: 167-194 (July) 1930

Bronchosinusitic Diseases in Children. I. H. Grimball, Greenville.—p. 169.
Acute Intestinal Obstruction and Management. J. H. Taylor, Columbia.—p. 173.
Tannic Acid in Treatment of Burns. W. H. Prioleau, Charleston.—p. 178.

Virginia Medical Monthly, Richmond

57: 283-354 (Aug.) 1930

Bilateral Ureterolithiasis: Case. S. H. Graves, Norfolk.—p. 283.
When a Woman Should Have a Baby and Why. L. M. Allen, Winchester.—p. 286.
Conservative Obstetrics. G. Baughman, Richmond.—p. 287.
Relationship of Various Specialties to General Medicine. A. A. Houser, Richmond.—p. 291.
Relationship of Pathology to General Medicine and Diagnosis. W. G. Rainey, Princeton, N. J.—p. 295.
Relationship of General Surgery to Medicine. J. S. Horsley, Jr., Richmond.—p. 296.
Relationship Between Radiology and Medicine. W. Clarkson, Petersburg.—p. 298.
Relation of Otolaryngology to General Medicine. M. L. Breitstein, Baltimore.—p. 299.
Relationship of Orthopedist to Medicine. P. C. Colonna, New York.—p. 302.
*Bromide Psychosis or Bromide Intoxication. M. S. Andrews, Norfolk.—p. 304.
What Hypertension Means in Terms of Vascular Function. L. T. Gager, Washington, D. C.—p. 307.
Carcinoma of Prostate. A. A. Creecy, Newport News.—p. 308.
*Temporary Phrenic Interruption Early in Minimal or Moderately Advanced Pulmonary Tuberculosis. S. E. Hughes, Jr., Monrovia, Calif.—p. 311.
Protoplasmic Blight. J. H. Bell, Colony.—p. 313.
Treatment of Four Hundred and Sixty-Two Cases of Acquired and Congenital Syphilis: Interstitial Keratitis and Spinal Fluid Findings. H. M. Doles, Norfolk.—p. 316.
Neurasthenia. W. E. Fitch, Bedford, Pa.—p. 321.

Bromide Psychosis or Bromide Intoxication.—The belief is expressed by Andrews that bromide intoxication symptoms occur more often than they are diagnosed. A simple, practical method, devised by Wuth, of determining quantitatively the bromides in blood is discussed. The treatment of this condition with sodium chloride and the elimination of bromides is mentioned. He reports a case showing the acute maniacal type of delirium; a case showing the mildness of mental type of reaction superimposed on arteriosclerosis with hypertension; a case showing the euphoric type of reaction; a case occurring in a nervous patient receiving cystoscopic treatments with an idiosyncrasy for bromides. Finally, a case with schizophrenic type of reaction, auditory hallucinations, fear of being gassed and suspicion toward food was described. The mental reaction in all of these cases improved or returned to an approximation of the normal following treatment; viz., withdrawal of bromides and administration of sodium chloride.

Temporary Phrenic Interruption Early in Minimal or Moderately Advanced Pulmonary Tuberculosis.—Hughes urges that temporary phrenic interruption should be done early in minimal or moderately advanced cases of pulmonary tuberculosis in which the involvement is limited largely or entirely to one lung, because increased functional rest of the diseased part will be produced, spread of the disease will be lessened, cough and expectoration will be made easier, and it will have a definite economic value.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

3: 293-340 (July) 1930

Position and Movements of Diaphragm. A. E. Barclay.—p. 295.
Modern Developments in Roentgen-Ray Therapeutic Technic. W. M. Levitt.—p. 304.
Output of Transformer with Different Methods of Rectification of High-Tension Current. A. Orliansky.—p. 316.
Comparison of Biologic Effectiveness of Radiations from Mercury Vapor Lamp and from Two Arc Lamps as Made by Screened Photo-Electric Cell. T. C. Angus.—p. 320.
Radiographic Diagnosis of Chronic Appendicitis. F. W. Taylor.—p. 323.

British Medical Journal, London

2: 87-128 (July 19) 1930

*Action on Human Uterus of Anesthetics and Other Drugs Commonly Used in Labor. A. W. Bourne and J. H. Burn.—p. 87.
Nervous Semeiology: Epilepsy. S. A. K. Wilson.—p. 90.
Streptococcal Septicemia and Aplastic Anemia: Case. D. A. Abernethy, A. G. Gibson and A. W. Russell.—p. 94.
Direct Comparative Diffraction Method of Demonstrating Megalocytosis. J. H. Malloy.—p. 96.
Measurement of Distributing of Gamma Rays Around Four-Gram Mass of Radium. H. T. Flint and L. G. Grimmett.—p. 98.
Latest Modification of Westminster Teletherapy Apparatus. F. R. Carling.—p. 99.
Fatal Dermatitis Following Use of Iodine Spirit Solution. R. C. Alexander.—p. 100.
Embolism of Abdominal Aorta. T. S. Eddie.—p. 101.
Taenia Saginata Infection. A. A. Denham.—p. 101.

Action on Human Uterus of Anesthetics and Other Drugs Commonly Used in Labor.—Records of intra-uterine pressure have been obtained by Bourne and Burn showing the effect of anesthetics and other drugs on the contractions during labor. The administration of chloroform or ether on an open mask at once arrests the contractions in the first stage, and diminishes their force and frequency in the second stage. The effect comes on rapidly, and passes off rapidly when the administration is discontinued. The action of ether is the same as that of chloroform. The administration of gas and oxygen has no effect on the contractions during labor. The intraspinal injection of stovaine does not inhibit the contractions but interferes with full relaxation between the pains. This appears to be due to continuous contraction of the lower segment, and if stovaine is given early in the first stage dilatation will be delayed. Morphine lessens the frequency of uterine contractions, but the pains pass off more slowly, so that the work done by the uterus is probably as great as or greater than before, despite the lessened frequency. Atropine appears to stimulate the contractions of the uterus. It certainly has no inhibitory action. The stimulant action of quinine during labor is small.

Edinburgh Medical Journal

37: 425-496 (Aug.) 1930

*Basophilic Substance of Erythrocyte. L. S. P. Davidson.—p. 425.
*Use of Common Compounds of Carbon in Disease: Cholera. R. J. S. McDowall.—p. 463.

Basophilic Substance of Erythrocyte.—As the result of his extensive research in this field, Davidson concludes that the basophilic substance of immature erythrocytes is the remnants of the protoplasm present in the nucleated stage. Along with hemoglobin it exists diffusely distributed in the colloidal contents of the cell. It is, therefore, invisible in the fresh untreated erythrocyte. The basophilic material becomes visible after staining, and the appearances of polychromasia, punctate basophilia or reticulation are produced depending on a variety of factors; namely: (1) the amount of basophilic substance present in the cell; (2) the type and concentration of the dye used; (3) factors causing fixation of the cell contents; (4) the presence or absence of laking, and (5) the degree of thickness of the cell membrane.

Use of Common Compounds of Carbon in Disease.—In view of the fact that increased body temperature increases the power of the body to resist bacteria, says McDowall, it is an interesting problem to consider how far it is beneficial to reduce body temperature hyperpyrexia; but it will be generally agreed that, if the high temperature produces signs of seriously affecting the nervous system, action must be taken. Even then it is probably better to cool the body by sponging or a tepid bath than to give antipyretics, although they may be more convenient. The cool bath has the advantage that, unlike the antipyretics, it reduces the body temperature without interfering with the vascular reactions to the condition from which the patient is suffering and gives more blood to deal with the affected part. In the treatment of typhoid, this treatment has been commonly adopted. McDowall concludes that on general grounds there is little justification for the use of the antipyretics except in dealing with special infections or when special symptoms, such as intense headache, are present. Treatment by direct cooling has also the additional advantage that the excessive respiration produced by the high temperature is reduced and the body retains the carbon dioxide which is such an important factor in its defenses against the invasion of bacteria.

Lancet, London

2: 175-226 (July 26) 1930

Neurohypophyseal Mechanisms from Clinical Standpoint. H. Cushing.—p. 175.
Use of Avertin in Childbirth. J. S. M. Connell.—p. 184.
*Comparative Researches on Galactose and Levulose Test for Hepatic Efficiency. A. W. Elmer and M. Scheps.—p. 187.
*Puerperal Infection. A. L. K. Rankin.—p. 188.
Nirvanol in Treatment of Chorea. C. F. T. East and E. R. Cullinan.—p. 190.
Thrombo-Angiitis Obliterans: Case. G. N. Clark.—p. 191.

Comparative Researches on Galactose and Levulose Test for Hepatic Efficiency.—Elmer and Scheps have investigated forty-one cases of hepatic inefficiency. The value of the galactose and levulose tests appeared in this series to be identical. In fourteen cases, however—that is, in one third—the results were different. The height and duration of the rise in blood sugar after the administration of galactose was not parallel with the curve of levulose; the blood sugar curve was flatter after the levulose than after the galactose in five cases, while in three the levulose test was slightly positive, and in four it was completely negative. Only in one case was the levulose test positive (+ 39 mg. per hundred cubic centimeters), with a negative galactose test (+ 28 mg.). Consequently, they consider that the galactose test is better than the levulose test. The metabolism of galactose, unlike the metabolism of levulose, is performed primarily with the cooperation of the liver and not with other tissues.

Puerperal Infection.—Eighty-nine cases notified as puerperal infection have been investigated by Rankin. The uterine culture was made at the bedside. Hemolytic streptococci were obtained in thirty-six cases either in pure culture or in association with other organisms. Hemolytic streptococci were present in pure culture in twenty-four cases. Eleven of these cases were severe septicemias, all giving a pure growth of hemolytic streptococci on uterine culture. Of the eleven cases giving a pure growth of *Streptococcus pyogenes*, eight were cases of puerperal septicemia. Of the eighty-nine patients, eleven died. One patient with general peritonitis died. Her blood culture was negative, and the uterine culture gave non-hemolytic streptococci. The other ten deaths occurred in septicemia cases.

China Medical Journal, Shanghai

44: 617-736 (July) 1930

Treatment of Pulmonary Tuberculosis. H. G. Barrie.—p. 617.
Inexpensive Apparatus for Production of Artificial Pneumothorax. O. G. R. Beynon.—p. 650.
Present Status of Treatment of Pulmonary Tuberculosis. S. H. Martin.—p. 651.
Application of Sanatorium Methods to Korean Patients. S. Hall.—p. 662.
Carcinoma of Cervix Complicating Pregnancy. G. King.—p. 667.
Laboratory Work in Korean Mission Hospitals. N. Found.—p. 675.
*Preliminary Report on Fluke Found in Shrimps in Chengtu and Environs. S. D. Du.—p. 679.

Fluke Found in Shrimps in Chengtu and Environs.—Du dissected many hundreds of shrimps and found trematodes in the stomach of each of these shrimps. Shrimps from rivers and small streams were found infested, while those from ponds

showed no infestation at all. It was also found that shrimps of different localities were infested with flukes to varying degrees. Moreover, some shrimps of a certain locality harbored great numbers, while others from the same locality harbored none at all. Whether these flukes are pathogenic or not to man is another important phase of the problem. As a matter of fact, it was found that these flukes lost their vitality in from ten to twenty minutes when they were put in 0.3 per cent hydrochloric acid solution (the concentration of the hydrochloric acid usually found in gastric juice), while they retained their vitality for several days when placed in tap or distilled water. Therefore it would seem that these fresh water parasites are not likely to be pathogenic to man. Clinically he has not as yet found any patient harboring these flukes, though a great many careful examinations have been made with this in mind.

Archives des Maladies du Cœur, etc., Paris

23: 305-368 (May) 1930

Arteritis of Venous Origin. M. Labbé, J. Heitz and Gilbert-Dreyfus.—p. 305.
*Radiotherapy of Lymphogranulomatosis. C. Aubertin, P. Thoyer-Rozat and Robert-Lévy.—p. 318.
*Electrocardiographic Study of Vagotropic Action of Epinephrine Injected Intravenously. M. Petzetakis and Vlachlis.—p. 333.

Radiotherapy of Lymphogranulomatosis.—Aubertin et al. consider radiotherapy a powerful destructive agent of the cellular elements of lymphogranulomatosis. They believe that in this condition it is indispensable to use a radiation of very short wavelength, provided either by roentgen ray generators operating under a tension of at least 200,000 volts or by radium or thorium X. The treatment by means of each of these three agents is reported, together with a description of results. Success in radiotherapy depends on earliness of diagnosis and immediate application of the treatment.

Vagotropic Action of Epinephrine Injected Intravenously.—Epinephrine, according to Eppinger and Hess, was an excitant exclusively of the sympathetic nervous system. Later researches showed, on the contrary, that it acted also on the parasympathetic system, but always with sympathetic predominance. In their research on this problem, Petzetakis and Vlachlis found that although epinephrine is amphotropic it possesses a predominant vagotropic action. They describe "epinephrine block." Verification was made by jugular tracings. Later a study was made of the action of epinephrine on the cardiac rhythm, under electrocardiographic control, of persons aged from 20 to 40 years with normal cardiac rhythm who had no organic lesions of the heart and whose oculocardiac reflex or supra-orbital reflex was normal or exaggerated. A dose of from 0.2 to 1 mg. of epinephrine, always dissolved in from 2 to 3 cc. of twice distilled water, was injected. The final results of the research (electrocardiographic control) proved the foregoing conclusion that an intravenous injection of epinephrine is predominantly vagotropic and causes a slowing down of the cardiac rhythm accompanied by atrioventricular dissociation.

Paris Médical

1: 591-606 (June 28) 1930

Fetid Purulent Pleurisy with Pneumococcus Infection and Purulent Pleurisy with Prolonged and Repeated Pneumococcus Infection. Nobécourt.—p. 591.
*Diagnosis of Gallbladder Lithiasis Without Complications. M. Chiray and A. Lomon.—p. 597.
Bacteriotherapy of Certain Diseases of Urinary Tract. P. Pollazzi.—p. 606.

Diagnosis of Cholelithiasis Without Complications.—Cholelithiasis in its three common aspects is discussed by Chiray and Lomon. The first, lithiasic dyspepsia created by anatomic and physiopathologic repercussions of the gallbladder on the stomach, shows the following symptoms: (1) absence of relationship between the rigidity of the diet and the intensity of the suffering; (2) resistance of dyspeptic disturbances to medical treatment; (3) existence of slight and persistent cholemia; (4) inability to take certain foods, as fats, eggs, chocolate; (5) painful attacks provoked by long automobile or train trips, and (6) the existence of a painful point over the gallbladder. The second form of cholelithiasis is paroxysmal, acute, manifested by hepatic colic, which corresponds to a pathologic contraction of the gallbladder; the third, continuous torpid lithiasis linked with the progressive evolution of cholecystitis and of chronic pericholecystitis. The second form is easily recognized; the third may exist as such from the start or may follow and complicate the hepatic colics with which it continues its evolution. In almost all cases it is preceded or accompanied by lithiasic dyspepsia. This clinical form corresponds to the evolution of hypertrophic or sclero-atrophic calculous cholecystitis. For all forms of gallbladder lithiasis, laboratory examinations are highly important to supplement and clarify the clinical history.

Schweizerische medizinische Wochenschrift, Basel

60: 573-596 (June 21) 1930

Healing Power of the Mind. W. Hellpach.—p. 573.
*Reducing Treatments. F. Grote and G. Calò.—p. 579.
Organs as Source of Mitogenetic Rays. A. Gigon and M. Noverraz.—p. 585.

Reducing Treatments.—Grote and Calò come to the conclusion that the lasting results of a reducing treatment are mainly dependent on strict individualization in each case. The basal and water metabolisms should be tested and the results of the investigations should guide in the selection of the therapeutic method. The authors found that, in the treatment of endogenous obesity, thyroid preparations are more effective if given simultaneously with hypophyseal preparations.

Clinica Ostetrica, Rome

32: 321-384 (June) 1930

*Results of Hormonotherapy with Serum and Blood of Pregnant Woman and with Follicular Fluid. E. Maurizio.—p. 321.
Studies on Chemical Vaginitis. L. Giornelli.—p. 330.
Diagnostic Errors in Differentiation of Gynecologic Diseases and Disorders of Urinary Tract. M. B. Cetroni.—p. 340.

Hormonotherapy with Blood of Pregnant Woman and with Follicular Fluid.—Maurizio reports that the results obtained with extracts are less favorable than those obtained with genuine follicular fluid. The ovarian hormone gave favorable results in a good many cases of ovarian hypofunctioning, and especially in disturbances of the "critical age" and in dysmenorrhea, acting directly on the genitalia, and reinforcing and stimulating the activity of the ovary. But also in cases of sterility due to functional disturbances or to hypoplasia the follicular hormone should find its indications, since by the restoration of regular menstruation the conditions favorable to fecundation are reestablished at the same time. The patients that the author has treated have been few and it is too early to speak of results. He can state merely that by continuing to administer to these patients from 160 to 240 units per month subcutaneously, or from 700 to 1,000 units by mouth, he has obtained an improvement in the general condition, more normal menses and the almost complete disappearance of leukorrhea.

Archiv für klinische Chirurgie, Berlin

159: 521-708 (June 21) 1930

Symptoms of Infected Retroperitoneal Hematoma. F. Sturm.—p. 527.
*Bacterial Content of Bandage Material: Need for Sterilization. Konrich.—p. 541.
Symmetrical Enlargement of Salivary and Lacrimal Glands (Mikulicz's Disease). H. O. Loos.—p. 553.
Traumatic Pneumocephalus: Three Cases. O. Winterstein.—p. 610.
*Organs and Structures That are Accessories to Spinal Column in Supporting the Body in Its Upright Position. A. Schanz.—p. 624.
Morphologic Changes in Liver After Splenectomy. M. Silberberg.—p. 632.
*Surgical Diseases of Bile Tract Caused by Parasites. B. K. Finkelstein.—p. 641.
Marble Disease of Bones. N. Kudrjawtzewa.—p. 658.
Echinococcus Disease of Bile Passages. D. M. Chajutin.—p. 688.
Chronic Ulcers of Leg: Pathologic Anatomic Characteristics in Relation to Treatment by Neurotomy. W. Hackel.—p. 698.

Bacterial Content of Commercial Bandage Material.—Of 404 packages of bandage material examined bacteriologically by Konrich, 211 were found to contain bacteria. Of 211 rolls of cotton examined, 115 were not sterile. A spore-forming bacillus was found in 152 packages; 11 also contained cocci; 4 also contained a fungus; some contained sarcinae and others yeasts. He advises caution in using any bandage material purchased in the market and urges that it be sterilized before it is used; in fact, any bandage material, gauze, cotton, and so on, should be sterilized before using.

Spinal Column and Other Supporting Structures.—Schanz has made a careful anatomic study of the spinal column as the main support of the body in the upright posture and of such other organs and structures as may be classed as accessory to the spinal column. Notable among these is the aorta. In fact, this structure gives so much support to the spinal column that those parts of the column which are in immediate contact with the aorta never are the seat of a spondylitis deformans. Spondylitis deformans, he says, is a disease which results from the demand for further support for the spinal column; therefore, where such support is already given by any other structure, as the aorta, spondylitis does not develop. Specimens illustrating the truth of this statement are shown. The bony thorax, in fact the whole thorax, and the abdomen are also supporting structures. Schanz urges that in studying the diseases of the spinal column attention should be paid to the condition of these accessory supporters.

Surgical Diseases of Bile Tract Caused by Parasites.—In 4 per cent of the cases examined by Finkelstein, parasites were found. The most commonly occurring variety was the echinococcus; next, trematodes, distomas, *Lamblia* and occasionally *Actinomyces* and the tenias. Cholangeitis and obstruction are the most frequent symptoms and surgical treatment only is indicated.

Münchener medizinische Wochenschrift, Munich

77: 967-1006 (June 6) 1930

Principles and Rules for Gerson's Diet. M. Gerson.—p. 967.
*Treatment of Pulmonary Tuberculosis with Salt-Free Diet. H. Alexander.—p. 971.
*Cod Liver Oil with Phosphorus and Gerson-Herrmannsdorfer-Sauerbruch Diet for Treatment of Tuberculosis. E. C. van Leersum.—p. 975.
*Vitamin Therapy of Pulmonary Tuberculosis. F. Scheurlen and A. Orlowitsch-Wolk.—p. 976.
*Curative and Prophylactic Value of Ponndorf's Tuberculosis Vaccination Disproved in Animal Experiments. W. Haase.—p. 978.
Simulation of Hemoptysis in Order to Obtain Compensation. H. Scheel. p. 980.
Contributions to Medical Science by Surgical Clinic of University of Berlin. A. Bier.—p. 980.
First Aid in Railroad Accidents. R. Mugrauer.—p. 983.

Treatment of Pulmonary Tuberculosis with Salt-Free Diet.—Alexander reports his observations with a salt-free diet in the treatment of fifty-two patients with tuberculosis. He comes to the conclusion that final statements regarding the value of this treatment cannot as yet be made. In some instances the results of the treatment are extraordinarily favorable. However, severe, progressive cases cannot be influenced by this diet. In the majority of cases the treatment can be continued for several months without difficulty.

Cod Liver Oil with Phosphorus and Gerson-Herrmannsdorfer-Sauerbruch Diet for Treatment of Tuberculosis.—Van Leersum points out that the phosphorus that is added to cod liver oil is not constant. Tests have proved that the original phosphorus content after three weeks has decreased to 65 per cent, and after six weeks to 40 per cent. Vitamins likewise are not constant and it seems probable that a substance so strongly reactive as phosphorus may also influence the vitamin content of the cod liver oil. The author made experiments on rats to test whether the vitamins A and D are influenced by the phosphorus. It was found that the vitamin D content was reduced to almost one half. The effect of phosphorus on vitamin A is less pronounced. The value of phosphorus in the treatment of tuberculosis has not been proved. The author points out that the admixture of phosphorus to cod liver oil is only a remainder of the old method for treating rickets, because phosphorus was considered by some as having antirachitic effects. In regard to tuberculosis it must be admitted that as yet it has not been proved whether either phosphorus or vitamin D are of therapeutic value. However, if these two factors are to be administered they should be given separately, phosphorus in an indifferent solvent, and vitamin D in the form of cod liver oil, to which viosterol may be added. The cod liver oil is significant, because it also contains the vitamin A, which strengthens the organism's resistance to infections.

Vitamin Therapy of Pulmonary Tuberculosis.—Scheurlen and Orlowitsch-Wolk thought that the efficacy of the Gerson-Herrmannsdorfer-Sauerbruch diet was due to its high content in vitamin D. On the basis of this assumption they administered vitamin D in the form of viosterol to fifty-two patients with pulmonary tuberculosis. The treatment was continued for from three to six months. The viosterol was given in the form of dragées, at first one daily and later two. The vitamin treatment was combined with the usual fresh air treatment, and in about one half of the cases cod liver oil and calcium were administered. The patients were kept under careful observation. Every three weeks they were examined, and roentgenograms were made every two months. The weight and temperature were controlled, and the sputum and urine were examined regularly. In summing up the results of the treatment, the authors state that seven progressive cases were not influenced. Of forty-five cases that were not progressive, six became worse; in thirty-one instances the results were about the same as after the usual sanatorium treatment, and only eight cases were greatly benefited. The authors come to the conclusion that neither the treatment with viosterol alone nor its combination with cod liver oil is of essential therapeutic value. Their theory that the efficacy of the Gerson-Herrmannsdorfer-Sauerbruch diet is due mainly to its content in vitamin D could not be proved. They think that perhaps the combination of the vitamins D and B, the latter of which is supplied mainly by the raw vegetables in the diet, will be more effective.

Curative and Prophylactic Value of Ponndorf's Tuberculosis Vaccination Disproved in Animal Experiments.—Haase investigated the practical value of Ponndorf's treatment for tuberculosis in experiments on animals. Ponndorf's vaccine was rubbed into cutaneous scarifications. Forty guinea-pigs were given the prescribed prophylactic treatments and then were inoculated with tubercle bacilli. A second group of thirty-eight animals was first infected with tuberculosis and then was given therapeutic vaccinations according to Ponndorf's method. The treatments were given either immediately following the infection or six, ten, fourteen or twenty-one days later. After four weeks the vaccination was repeated. A third group of twenty-five animals served as controls; they were inoculated with tubercle bacilli, but Ponndorf's vaccine was employed neither for prophylaxis nor for therapy. The author asserts that the course of tuberculosis was nearly the same in all three groups. The animals that had received therapeutic vaccinations died on the average one week sooner than those in the other two groups. Postmortem examinations revealed that the animals in which Ponndorf's method had been employed after infection with tuberculosis had more exudative processes, effusions in serous cavities, miliary disseminations and mixed infections than those that had received prophylactic vaccination. In the latter group, cirrhotic processes were more frequent. For diagnostic purposes Ponndorf's vaccination is not practical, and hereditary transmission of the vaccination protection could not be demonstrated. If, from these animal experiments, conclusions may be drawn for tuberculosis in human beings, then, the author thinks, Ponndorf's method has neither therapeutic nor prophylactic value; on the contrary, it might even be harmful.

Zeitschrift für Kinderheilkunde, Berlin

49: 361-492 (May 22) 1930

Water Metabolism in Nurslings. O. Bosch.—p. 361.
Traumatic Injuries of Basal Ganglions. A. Wald.—p. 375.
Pyloric Stenosis in Nurslings. E. Nobel and R. Priesel.—p. 398.
*Diabetes Mellitus in Children: Malformations. R. Priesel and R. Wagner. —p. 419.
Tonsillitis with Atypical Lymphocythemia in Children. H. Sievers.—p. 429.
*Tuberculous Meningitis: Intraspinal Tuberculin Treatment. G. E. Selter.—p. 437.
Capillary Resistance: Significance and Indirect Determination. F. Basch. —p. 446.
Chronic Miliary Tuberculosis in Children. J. Jochims.—p. 461.

Diabetes Mellitus in Children: Malformations.—Priesel and Wagner enumerate the malformations they found in 107 diabetic children. They noted one instance of gigantism and dwarfism in the same family. In one of the children examined there was a fusion of the posterior portion of two ribs with the result that the adjacent intercostal spaces were abnormally

wide. In another child the sternal end of the bony part of one of the ribs was enlarged. One child had a curvature of the little finger resembling the condition that occurs in mongolian idiocy, except for the absence of the characteristic curvature of the middle phalanx. In a large number of the children, scaphoid scapula (medial edge of scapula concave) was present. In some of the children, hyperextensibility of the joints was noted; in one instance this condition concurred with a subcutaneous nodule in one of the ears and with an accessory nipple. Other malformations noted were one instance of congenital luxation of the patella, one of marked lordosis with definite lordotic albuminuria, one of congenital cataract, one of Dupuytren's contracture, one of inguinal hernia on the right side and a patent inguinal canal on the left, one of defect on the distal end of the incisors, one of concurrence of ichthyosis with a large pigmented nevus below the right nipple, one of concurrence of unilateral congenital hypermetropia and congenital absence of the uvula, one of infantilism, one of premature hyperplasia and pendency of the mammary gland, and one of imbecility. On the basis of their study the authors state that some of the stigmas that occur in diabetic children are not discovered until an exact examination is made of the slightest deviations from the normal.

Tuberculous Meningitis: Intraspinal Tuberculin Treatment.—Selter reports a case of tuberculous meningitis (demonstration of tubercle bacilli in the cerebrospinal fluid) in an infant, aged 1¾ years, in whom intraspinal injections of tuberculin were followed by recovery. He states that the intraspinal injection of tuberculin is almost always followed by an intense meningeal reaction (elevation of temperature and intensification of the symptoms of increased intracranial pressure) but not by a reaction at the tuberculous foci in the lungs. This action is doubtless the result of an artificial active immunization in the cerebrospinal canal. The author recommends this form of treatment in all cases of tuberculous meningitis.

Zeitschrift für klinische Medizin, Berlin

113: 157-322 (May 23) 1930

Blood Pressure: Simultaneous Measurement in Two Extremities. H. von Recklinghausen.—p. 157.
Changes Produced in Myocardium by Injection of Iodized Sesame Oil into Wall of Ventricle. G. W. Parade and W. Stepp.—p. 195.
*Hydrothorax in Cardiac Insufficiency. O. Satke.—p. 212.
*Nephritis: Dietetic Treatment. K. Eimer and W. Voigt.—p. 224.
Renal Insufficiency: Blood Reactions. J. Kleeberg.—p. 243.
Diabetic Coma: Treatment. J. Kleeberg.—p. 255.
*Case of Albuminuria with Globulin in Urine. A. Fischer and H. Gehlen.—p. 270.
Diseases of Liver: Lipase Determinations. J. Friesz and I. Hallay.—p. 275.
*Familial Renal Glycosuria. G. R. Constam.—p. 281.
*Angina Pectoris: Surgical Suppression of Pressor Reflex. D. Danielopolu.—p. 294.
Colloidosmotic Pressure of Blood Serum During Elimination of Edema Fluid. E. Kylin.—p. 317.

Hydrothorax in Cardiac Insufficiency.—In an attempt to explain the well known clinical fact that in the majority of cases of cardiac insufficiency the hydrothorax is greater on the right side than on the left, Satke made determinations of the pressure in both pleural cavities of eight persons. The measurements were performed only on persons clinically and roentgenologically free from pulmonary and pleural changes, particularly pleural adhesions. In seven of the eight persons the negative pressure was greater in the right than in the left pleural cavity. The author believes, however, that in cases in which a right-sided hydrothorax occurs as the first and only manifestation of cardiac insufficiency, mechanical factors are of importance. He enumerates the factors as compression of the azygos vein by a dilated right atrium, by fine pleural adhesions, by descent of the dilated right heart, by a dilatation or aneurysm of the aorta, and by extension of a periaortitis to the pleura.

Nephritis: Dietetic Treatment.—Eimer and Voigt discuss the significance of uncooked food in the dietetic treatment of nephritis. The results obtained in acute glomerulonephritis are as good as the results obtained with other diets and the patient is not restricted so much in his selection of food; moreover, he does not become as thirsty as he does on other dietaries. In subacute and chronic nephritis a diet of uncooked food causes a large amount of water to leave the organism, and for this reason it is particularly suitable in hydropic forms of nephritis. The other objective signs of nephritis, particularly the hypertension, are favorably affected and the improvement in the subjective condition of the patient is even more striking. In chronic nephritis with preuremic symptoms, better results are obtained with a diet of uncooked food than with any other form of treatment.

Albuminuria with Globulin in Urine.—Fischer and Gehlen report a case of albuminuria in which the large amount of protein eliminated consisted almost exclusively of globulin (euglobulin and pseudoglobulin). Neither a protein-free diet nor the administration of a large amount of protein affected the quantity and composition of the protein in the urine; on the protein-free diet the protein content of the blood serum, however, decreased somewhat, principally at the expense of the globulin. The chemical identification of the protein was carried out primarily by means of tryptophan determinations. The mechanism involved in the elimination of large quantities of globulin in this case can best be explained on the basis of the secretion theory.

Familial Renal Glycosuria.—Constam reports the occurrence of renal diabetes in all three children in a family. In one of the children the glycosuria was refractory to insulin. The peroral administration of a choline derivative or ergotamine tartrate likewise did not affect the glycosuria and small doses of phlorhizin increased it.

Angina Pectoris: Surgical Suppression of Pressor Reflex.—According to Danielopolu, the attacks in angina pectoris are a manifestation of myocardial fatigue that results from intoxication of the sensory and motor elements of the myocardium by the products of fatigue. The condition is produced by an inadequate blood supply of the myocardium and through a pressor reflex arc. In angina pectoris the lesions of the coronary vessels and of the aorta in the region of the coronary ostia and lesions of the cardio-aortic nerve plexus are predisposing factors. For the initiation of an attack of angina pectoris in a heart thus predisposed there must also be present a determining factor; this is usually in the form of an increase in the amount of work done by the heart or a decrease in the blood supply or in a combination of the two factors. The attack is initiated through the nerve tracts. The toxic products of fatigue stimulate the centripetal nerve ends and produce over the centripetal and centrifugal cardiovascular tracts a pressor vicious circle. In the development of an attack of angina pectoris, the pressor reflex is indispensable. The author believes therefore that, although the progress of the coronary lesions cannot be stopped, by arresting the attacks of angina pectoris one may prolong the life of the patient. To arrest the attacks the author extirpates the cervical sympathetic (leaving the inferior ganglion), divides all the branches of the vagus that run vertically down into the thorax, the rami communicantes that connect the inferior cervical ganglion and the first thoracic ganglion with the sixth, seventh, and eighth cervical and the first thoracic pair of spinal nerves, and the rami communicantes that form the anastomosis between the superior laryngeal nerve and the vagus nerve in cases in which this anastomosis is present. In a review of twenty-eight cases of angina pectoris in which this treatment was used, the author found that in the great majority of the cases the effect of the operation had been reported as complete or almost complete. In some of the cases the improvement was evident even during the first year after the operation. The results were best in the advanced cases with frequent and severe attacks. In none of the cases did the operation terminate fatally.

Zentralblatt für Chirurgie, Leipzig

57: 1329-1392 (May 31) 1930

*Fistula of Hip Joint. E. Pflomm.—p. 1330.
*Postoperative Lung Complications. E. N. Stahnke.—p. 1333.
Gangrenous Inflammation of Gallbladder of Boy Four Years of Age. H. Schamoni.—p. 1340.
*Case of Splenomegaly Caused by Thrombosis of Splenic Vein: Splenectomy. E. Vertár.—p. 1342.

Chronic Tuberculous Peripleuritis. F. Krauss.—p. 1344.
New Arch Supporter for Weak Tarsal Joints. E. Brinkmann.—p. 1346.
*Relation of Stenosing Tendovaginitis to Arthritis Deformans. O. Winterstein.—p. 1347.
*Prevention of Postoperative Gastric Paralysis. H. Hilarowicz.—p. 1350.

Fistula of Hip Joint.—Two cases are reported by Pflomm. The first patient had a tuberculosis of the ischium but the roentgen ray failed to show it in the roentgenogram. In the presence of a fistula at the top of the gluteal region, it was believed that a tuberculous focus must be present somewhere, especially when 50 cc. of fluid was aspirated from the bottom of the fistula. Contrast material was injected into the fistula and then the roentgen ray located the seat of the trouble with exactness. The second case was one of osteomyelitis of the ilium. The abscess ruptured just above the groin and a fistula developed. Here, too, the roentgen ray failed to locate the trouble until stereograms were made after contrast material had been injected.

Postoperative Pulmonary Complications.—Stahnke is of the opinion that these complications are caused by the poor ventilation of the lung incident to posture during the operation, to great pain and to infection of the upper air passages. They are preventable by treating preexisting infections, such as bronchitis, by preventing infection during operation, by the administration of anodynes which do not have any effect on respiration, and by the use of local anesthesia at the hands of a good anesthetist. After operation, pain should be held in check; the patient should be kept comfortable in every way. Any tendency to apathy should be combated, and respiratory exercises, cold douches, oxygen inhalations, and change of posture (lying on the side) should be resorted to frequently. As an anodyne he favors morphine. The treatment of bronchitis, bronchopneumonia and pneumonia is discussed but does not differ from that usually employed.

Extirpation of Spleen for Thrombosis of Splenic Vein.—In the case cited by Vertán, a girl, aged 14 months, was suspected of having congenital syphilis. She was treated with arsphenamine and a suitable diet was prescribed. The spleen was greatly enlarged. She returned to the clinic two years later with every symptom of splenomegaly. Operation was refused. Four months later she returned again with many acute symptoms—fever, bloody stool and bloody vomit. There was a high grade anemia; the abdomen was large because of the enormously enlarged spleen. The red blood cells numbered 1,430,000; hemoglobin, 14 per cent; thrombocytes, 49,800; there was a high degree of leukopenia with relative lymphocytosis. The clotting time was normal. The diagnosis was thrombosis of the splenic vein, with splenomegaly. This diagnosis was confirmed at operation and the spleen was removed. The vein was not touched as it was believed better not to handle it and thus spread the thrombosis, and there was no further danger from leaving it in place. The child improved rapidly after the operation. Six months afterward the red cells numbered 4,420,000; hemoglobin, 72 per cent; thrombocytes, 380,000; leukocytes, 9,200. The patient had also gained considerably in weight.

Stenosing Tendovaginitis as a Cause of Arthritis Deformans.—Winterstein sees a close analogy between these two conditions and they frequently occur simultaneously. He has studied fifty cases of tendovaginitis carefully. The stenosis occurs wherever the sheaths of the tendons are reinforced by bands of fibrous tissue, around joints, and, when the stenosis occurs, changes take place in the joint which lead to bone and cartilage growth and the consequent deformity.

Prevention of Postoperative Gastric Paralysis.—Hilarowicz is convinced that the gastric dilation with accompanying symptoms of gastric distress occurring after operations on the stomach or bowel is caused by a weakening of the stomach muscles, incident to the operation and the anesthesia which prevents the functioning of the gastro-enterostomy opening. As a preventive he proposed drainage. A rubber drainage tube of sufficient size is sutured in place in the new opening, thus ensuring free flow of fluids from the stomach into the bowel. This tube is eventually passed by the anus. He describes his technic in detail.

57: 1393-1456 (June 7) 1930

*Case of Gas Peritonitis Due to Perforated Gastric Ulcer. Wilmanns.—p. 1394.
Multiple Ruptures of Meniscus of Knee Joint: Bilateral "Drawer" Symptom, a Sport Injury. F. Mandl.—p. 1396.
*Complete Resorption of Bone — A Rare Complication of Fracture of Clavicle. E. Rothermel.—p. 1400.
Safety of Splanchnic Anesthesia. H. Finsterer.—p. 1404.
Use of Tribromethanol and Solution of Secondary Butylbrompropenylbarbituric Acid in Treatment of Tetanus. H. Schamoni.—p. 1408.
*Preventable Fatal Embolism of Lung. B. Martin.—p. 1411.
Separation of an Exostosis of Humerus. W. Schosserer.—p. 1413.
*Does Diagnostic Use of Roentgen Ray Affect Callus Formation in Healing of Fractures? P. Schneller.—p. 1414.
*Fatal Case of Edema of Glottis: Conversion of Aryepiglottic Fold into Globular Mass. A. Vass.—p. 1419.
Edema of Glottis Developing in Course of Anesthesia. A. Gottschalk.—p. 1421.
Treatment of Wounds. C. von Scanzoni.—p. 1422.

Gas Peritonitis Due to Perforated Gastric Ulcer.—Wilmanns reports that a man, aged 65, was brought to the clinic with a diagnosis of ileus. Four days previously he was suddenly wakened by a severe pain in the abdomen. Otherwise he seemed to be well. Gradually he developed constipation, flatus failed to pass, and nausea was present, increasing steadily in degree. The abdomen became enormous and was tympanitic everywhere. The general condition of the patient was bad. In the belief that an obstruction existed in the neighborhood of the cecum, a small opening was made. Immediately there was a rush of nonodorous gas and the abdomen collapsed completely. There was no fluid. The intestines also were collapsed and covered with a gummy yellow substance which had caused agglutination of all the coils. This suggested perforated gastric ulcer, and on further search the ulcer was found on the lesser curvature. The length of time intervening between the time of the perforation and the operation necessitated suture of the ulcer and drainage. The patient lived for three weeks.

Complete Resorption of Bone After Fracture.—Rothermel cites the case of a youth, aged 17, well developed and muscular, who injured himself in the gymnasium and sustained a fracture of the left clavicle at the junction of the middle with the outer third. The proper treatment was given and after a month the bandage was removed. The fracture had healed. About seven months later he noticed that there was something wrong with his shoulder, and on examination it was found that most of the clavicle had been resorbed. This resorption continued until all but a small piece remained. There seemed to be no cause assignable for this occurrence. The young man had remained well; he had not spared, nor did he abuse the shoulder, and when, finally, he refrained from all exercise, it did not check the resorption of the bone.

Prevention of Pulmonary Embolism.—Martin makes use of a treatment which, while it does not prevent the occurrence of pulmonary embolism, does prevent the fatal variety. He injects 1 cc. of a 0.01 : 100 solution of calcium chloride subcutaneously every day after operation or injury from the sternum on downward in all patients over 30, even in the absence of any sign of thrombosis, for eight consecutive days, beginning the day after the operation or injury. If twenty-four hours has elapsed before the patient is seen, he begins the injections immediately. On the first sign of a thrombosis or a lung infarct, even when only suspicion is aroused, the injections are begun and continued for fourteen days, regardless of whether a series of injections has been given previously. If such signs are manifested, or suspicion is aroused, in the course of a series of injections, then they are continued for fourteen days from that time on. The injections have not been known to cause any ill effects; in fact, the patient has always felt better after them. Oxygen inhalations have also proved of value. They are given so long as the patient receives benefit from them.

Effect of Roentgen Ray on Healing of Fracture.—After a number of years of observation of the effect of the dose of the roentgen ray used for diagnostic purposes in cases of fracture on the healing process, Schneller is convinced that it neither favors nor hinders callus formation.

Unusual Cause of Edema of Glottis.—In the case cited by Vass, edema of the glottis caused one of the aryepiglottic folds to clump itself into a ball-like mass, which obstructed breathing and caused the death of the patient.

Zentralblatt für Gynäkologie, Leipzig

54: 1537-1600 (June 21) 1930. Partial Index

*Chorio-Epithelioma and Pregnancy Reaction. K. Ehrhardt.—p. 1538.
Aschheim-Zondek's Pregnancy Reaction and Indication for Operation of Chorio-Epithelioma. O. Fahlbusch.—p. 1542.
Prevention of Misuse of Aschheim-Zondek's Pregnancy Reaction. A. Stern.—p. 1544.
Tribromethanol Anesthesia in One Thousand Gynecologic Operations. W. Scheidt.—p. 1546.
Diagnosis of Secondary Abdominal Pregnancy. W. A. Chatunzew.—p. 1557.

Significance of Pregnancy Reaction in Diagnosis of Chorio-Epithelioma.—Ehrhardt reports the case of a woman, aged 30, who, two years previously had had a hydatid mole. The present symptoms indicated a cerebral tumor. The development of the tumor after a hydatid mole made it appear probable that the cerebral tumor was a metastasis of a chorio-epithelioma. The observations during the gynecologic examination were such as to indicate either a pregnancy or a chorio-epithelioma. For this reason Aschheim-Zondek's pregnancy test was performed. The reaction was strongly positive even in diluted urine, and it indicated an unusually high hormonal concentration. The excessive hormonal content of the urine was indicative of chorio-epithelioma rather than of pregnancy. Curettage was done but nothing was found that would corroborate the existence of a chorio-epithelioma. Because the neurologic examination gave additional proof for the existence of a cerebral tumor, trepanation was done. However, the patient's condition did not improve. She died five weeks later. During her six weeks' stay at the clinic the Aschheim-Zondek test was repeated several times, and the results always indicated a high hormonal concentration. The postmortem examination revealed a chorio-epithelioma with metastases in the brain, lungs, kidneys, liver, spleen and left ovary. The hormonal content of the primary tumor and of the metastases was tested by implanting tissue into infantile mice. The tissues proved to be exceptionally toxic, and most of the test animals died. However, the mice that could be kept alive showed the positive reaction and thus proved the high hormonal content not only of the primary tumor but also of the metastases. This case report illustrates the significance of Aschheim-Zondek's pregnancy reaction in the diagnosis of chorio-epithelioma.

Acta Obstetricia et Gynec. Scandinavica, Helsingfors

10: 103-246, 1930

Study of Medicine in Sweden. H. Forssner.—p. 103.
Education and Organization of Midwives in Sweden. E. Bovin.—p. 108.
*Myoma of Portio Vaginalis Uteri. A. O. I. Turunen.—p. 111.
Congenital Kidney Malformations and Oligohydramnios. E. Bardram.—p. 134.
*Thrombosis of Femoral Vessels: Diagnosis. J. Olow.—p. 159.
Malignant Teratoma of Ovary: Case. E. A. Björkenheim.—p. 163.
Minute Volume and Respiratory Metabolism Determinations During Pregnancy. P. Windfeld.—p. 182.
*Sedimentation Test in Disease of Adnexa. M. Nielsen.—p. 201.
Severe Form of Anemia During Pregnancy: Case. A. Lennér.—p. 226.

Myoma of Portio Vaginalis Uteri.—Turunen reports two typical cases of myoma of the portio vaginalis uteri and states that up to the present only 112 cases of this condition have been reported in the literature. He has made a compilation of all the cases in two tables, one of cases presenting clinical symptoms, the other of cases in which the tumors were discovered in connection with labor, and describes the clinical picture produced by them and their effect on the course of labor.

Thrombosis of Femoral Vessels: Diagnosis.—Olow describes a new sign of thrombosis of the femoral vessels. He states that if the leg is grasped at a point where the gastrocnemius muscle passes over into the achilles tendon and if pressure is exerted there anteriorly against the posterior surface of the tibia, the patient, if thrombosis of the femoral vessels is present, will experience pain. The sign appears from several days to several hours before the classic symptoms of thrombosis. In some cases, however, the sign is transitory and if the examination is made on only one or two occasions it may be missed.

Sedimentation Test in Disease of Adnexa.—According to Nielsen, in lesions of the uterine adnexa the sedimentation test is of value only in the differential diagnosis between tuberculous and nontuberculous meningitis and between infection of the adnexa and incomplete tubal abortion with slight or no intraperitoneal hemorrhage. The test is not especially useful in acute conditions, as tubal abortion with profuse intraperitoneal hemorrhage, appendicitis or perforation appendicitis of other origin. In general, a single test is of little value for diagnostic purposes. Serial tests, on the other hand, usually give valuable information when judged in connection with the other observations. In acute salpingitis the graphic representation of systematic serial sedimentation tests shows a curve with a steep rise, reaching its highest level in from three to five days; after an almost horizontal course for a shorter or longer period (depending on the character of the process) the curve begins to fall slowly, the start of the fall coinciding with, or following shortly after, the decrease in the temperature. In tuberculous salpingitis, on the other hand, the curve rises slowly or runs horizontally; here the observation period should be at least from one and one-half to two months. In tubal abortion without intraperitoneal hemorrhage the curve also shows a rise for a briefer period, which is to be taken as a significant sign when accompanied by a decrease in the hemoglobin percentage and by an absence of leukocytosis. The serial sedimentation test is of significance, too, with regard to the prognosis and the therapy. In operative treatment a sedimentation reaction of 20 mm. after one hour constitutes a fairly probable security against postoperative complications.

Hygiea, Stockholm

92: 449-480 (June 15) 1930

*Electrocoagulation in Surgery of Brain. H. Olivecrona.—p. 449. C'td.

Electrocoagulation in Surgery of Brain.—Olivecrona reports some of the fifty cases of brain tumor, representing important and frequent types, treated by this method during the current year.

Ugeskrift for Læger, Copenhagen

92: 533-562 (June 5) 1930

*Roentgen Examination of Female Urethra. E. Thomsen.—p. 533.
Roentgen Examination of Male Urethra. E. Boas.—p. 540.
*Isolated Fracture of Navicular Bone. S. Harild.—p. 545.
*Cyanide Poisoning: New Effective Treatment. M. Schmidt.—p. 548.
Cure of Skin Tuberculosis with Iodine and Potassium Iodide Solution. J. J. Jensen.—p. 550.
Playthings Endangering Life. E. Holm.—p. 551.
*Torsion of Meckel's Diverticulum. E. Holm.—p. 551.

Roentgen Examination of Female Urethra.—Thomsen discusses two methods of urethrography and reports his preliminary investigations. He asserts that the normal female urethra has a kink, not previously described, and that straightening of the kink is closely associated with a relative incontinence of urine.

Isolated Fracture of Navicular Bone.—Harild states that a navicular fracture, left undisturbed, usually causes pseudarthrosis with grave disturbances of the function of the wrist. Operation is generally unsatisfactory, but early diagnosis and immediate immobilization, effective and continued long enough, in many cases lead to osseous, symptom-free healing.

Cyanide Poisoning: New Effective Treatment.—Schmidt feels that his excellent results after an injection of sodium thiosulphate, together with Feyerabend's even better results, indicate this as the only permissible method in cyanide intoxication.

Torsion of Meckel's Diverticulum.—Holm reports a case of simple torsion of a free diverticulum.

Upsala Läkareförenings Förhandlingar, Upsala

35: 105-222 (June 1) 1930

Contributions to Quantitative Knowledge of Brain Lipoids. E. Backlin.—p. 105.
*Thrombocyte Values in Pernicious Anemia. A. Kristenson.—p. 185.
Stereoscopic Photography of Background of Eye (Ophthalmostereography). J. W. Nordenson.—p. 217.

Thrombocyte Values in Pernicious Anemia.—Kristenson affirms that a constant low or sinking thrombocyte value points to an unfavorable prognosis. A thrombocyte value of 5,000 indicates a grave prognosis. Rising values indicate a better prognosis. In remission, the increase in thrombocytes begins before the rise in erythrocytes. The kind of therapy does not noticeably affect the character of the blood platelet reaction. Manifest hemorrhagic diathesis and low thrombocyte values are not necessarily related.